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ORIGINAL ARTICLES.

VAN ARSDALE'S TRIANGULAR SPLINT IN THIRTY-THREE CASES OF FRACTURE OF THE SHAFT OF THE FEMUR IN INFANTS AND CHILDREN UNDER SIX YEARS.

A RÉSUMÉ OF THE DIFFICULTIES AND COMPLICATIONS OVERCOME; WITH STATISTICAL TABLES EMBRACING OVER 64,000 FRACTURES ILLUSTRATING THE PERCENTAGE OF FRACTURE OF THE FEMUR AT VARIOUS AGES.

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Van Arsdale's triangular splint is made of thick straw or binders' cardboard, and adjusted in the following way. 1. Measure the length of the uninjured thigh from the middle of the groin to the end of the femur.

2. Outline upon the cardboard a figure resembling two spades (as seen on playing-cards), united at their points, the length of each of the four sections (A, B, C, D) to be equal to the length of the child's thigh (Fig. 1). The flanged portions to equal at the widest part the length of the thigh. Cut outlined figure with a knife or scissors.

3. Moisten cardboard on one side and fold on the dotted lines, lapping section A over D so as to form a triangle, and fasten together by two strips of adhesive plaster (Fig. 2).

4. Cover the abdomen and thigh with absorbent cotton, secure in place with a gauze bandage.

5. Flex the thigh and place the triangle therein so that one flanged portion embaces the thigh, the other lies upon the abdomen.

6. Secure the splint by muslin bandages carried through the splint, around the body and then around the thigh. To prevent lateral motion, take reverse or figure of 8 turns at the upper angle around the body and at the lower angle around the knee(Fig. 3).

7. Encircle the body and thigh with starch or crinoline bandages to fix the splint and prevent removal.

While one person can adjust the splint, it is better to have an assistant keep the thigh flexed against the splint, and to exert a certain amount of extension while the splint is being secured in place. In a child with a very prominent abdomen the upper bar (Fig. 2), made by overlapping A and D (Fig. 1), can be shortened so as to increase the flexion of the thigh and throw the body weight farther forward, allowing the child to sit down with greater ease and comfort. The leg must be bandaged from the toes up to the knee to prevent any tendency to swelling, but not so as to prevent flexion of the knee.

This splint was first applied to Case 12, Table 5, and has been used on fifteen cases in Dr. Van Arsdale's department and on eighteen cases (including four cases in 1896) by Dr. Swinburne, or a total of thirty-three cases. In Cases 18 and 22, union with angularity had already taken place when brought to the dispensary, but the natural contour of the limbs was restored by the use of the splint for three weeks.

The rule followed has been to see the child at the end of each week, to examine the splint and if necessary to remove and replace it, and finally take it off at the end of the third week, when firm consolidation and cure were obtained in all the cases. To remove stiffness from disuse and restore muscular tone, friction was then applied morning and night to the limb, the strokes always being directed toward the trunk, never up and down. There was no appreciable shortening.

Dr. Swinburne's eighteen cases.—In response to my request in a personal communication, Dr. G. K. Swinburne writes: "Unfortunately, my records are very unsatisfactory and I must give my answers to your questions entirely from memory. None of my cases, so far as I can remember, were over 3 years old. The two youngest cases, one with accompanying fracture of the humerus, occurred at birth and were brought to me within a few days. Almost all occurred in the middle third; two-thirds were transverse; one-third were green-stick; none oblique. Angularity always occurred with the apex of the angle pointing forward. Triangle left on three weeks as a rule, sometimes removed as early as the end of the second week; changed once a week. I remember only three cases as congenital or occurring at birth. The others were due to violence, but could not obtain satisfactory answers from those accompanying the child. No shortening in these cases at time of discharge. Effect on development later I have never been able to note. This method has been always satisfactory as regards cleanliness, but requires careful watching to avoid angularity. Extension does not seem to be necessary in these cases."

Frequency at all ages.—That fracture of the femur at all periods of life is a not uncommon occurrence is well shown by Bruns'[1] analysis in decades of 3,986 fractures (Table 2), and the statistics of various authors tabulated by Gurlt[4] (Table 1) giving a total of 64,979 fractures, of which 5,051, or 7.8 per cent., were of the femur.

In children under 10 years.—The frequency of fracture of the femur in children seems to be a matter of wide difference among the various observers (Table 3), varying from 36.4 per cent. (Beck[2]) to 4.5 per cent. (Packard[3]). The latter states that the low percentage may be accounted for by reason of the unwillingness of parents to send their children to public

institutions; a large proportion of cases are treated at home. Gurlt[4] was unable to account for the apparent rarity of this accident, as shown by the London hospital statistics, 1804 to 1862, until in 1877 he added the fracture tables from the out-patient departments. Summing up the cases in Table 3, gives us 1,599 fractures in children under 10 years, of which 296 were fractures of the femur, an average of 18.5 per cent.

Eastern and Good Samaritan Dispensary.—The work of the Eastern and Good Samaritan Dispensary shown in Table 4, gives a résumé for the nine years ending Dec. 31, 1895. If we divide the total number of children under 10 years (254,036) by the total number of fractures of the femur at the same age, we find but 1 in 6,250 children. Again dividing the total number of fractures in children (343) in Van Arsdale's division (surgical) by the fractures of the femur (26) gives 1 in 13, or 7.5 per cent. fractures of the femur to all fractures in children under 10 years old.

Age.—The youngest child to which the splint was applied (Table 5) was but six weeks old, and the oldest 5½ years. This perhaps accounts for the low percentage, as no doubt many children between the ages of 6 and 10, being too heavy to carry in arms, were taken to the hospitals or treated at home.

Sex.—Of the twenty cases in which the sex was recorded, five were girls and fifteen boys.

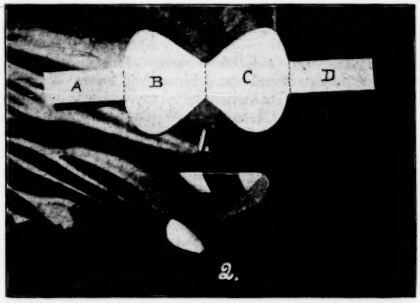

Fig. 1.—Diagram showing outline of splint, to be folded on the dotted lines. Each section to equal the length of the child's thigh.
Fig. 2.—Diagram, splint folded, fastened by rubber plaster, flanges bent to embrace the thigh and abdomen, ready for adjustment.

Comparative tables.—Table 6 shows the wide difference in the number of fractures in the same location which may come under the care of two surgeons, as illustrated by the number of fractures of the clavicle, Beck[5] 7.3 per cent., Van Arsdale 50 per cent., while of fractures of the femur the former had 36.4 per cent. and the latter 7.5 per cent.

Extreme opinions.—On referring to the literature on fracture of the femur in children, one is at once struck by the wide variance as to the relative importance of the way to handle these cases. Owens[5] states that broken thighs in children always do well; extension and counter-extension are not necessary, for there is no overlapping, and all that is necessary is to keep the little patient at rest and protect the limb from disturbance. He naively adds: There is no better way than by Thomas' hip splint. Whatever be the kind of apparatus selected, it must not hurt nor require frequent readjustment, nor become spoiled from being wetted or soiled. Holthouse[6] took a somewhat similar position when he said that it is seldom necessary to do more than encircle the thigh from the knee to the hip with soap plaster spread upon leather, care being taken that it is not applied too tightly.

Difficulties.—On the other hand, when we recall the numerous apparatuses made use of, or read the statement of Stimson[7] that the practical difficulties in the way of the usual dressings have seemed so great that some of the most experienced surgeons, Paget and Callender, have discarded them entirely and treated many such fractures without splints, the child being laid on a firm bed with little or no head pillow, with the broken limb, after setting, bent at the hip and knee and laid on its outer side, we must conclude that the subject is worthy of careful study.

Starr[8] points out the difficulty of maintaining the fragments in apposition, due to the restlessness and the necessity of frequent removal of the dressing, due to soiling and irritation with chafing and excoriation.

Vertical extension, writes Kümmel,[9] was first successfully tried in 1877 in Berlin, in the department of Dr. Schede, and has been exclusively used in femur fractures in case of children 1 or 2 years old, and further in those of 3 and 4 years when, on account of the soiling of the bandages, horizontal extension was not practicable. Disturbance of the circulation in the vertically raised leg does not appear in case of such young children. His tables show that several children, while in the extension bandage, passed through scarlatina, measles, pertussis and convulsions,

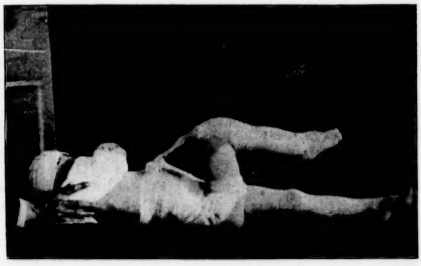

Fig. 3.—Showing Van Arsdale's triangular splint in position. Note the wide space between the dressings and the excretory passages.

and some succumbed after infectious disease, but none as a consequence of continuous resting upon the back. This optimistic view is refuted by Jacubasch,[10] who complains that with the vertical extension hypostatic pneumonia could not be prevented.

Though Hamilton's[11] double thigh splint for children does not confine to bed and permits of moving from place to place, it requires frequent changes in order to maintain cleanliness and prevent excoriation.

"*Physiologic doctrine.*"—Hamilton refers to Percival Pott as the first to oppose the treatment of fractures on the old lines, when he brought out his remarkable treatise on fractures and promulgated what has been called the "physiologic doctrine," the peculiarity of which consisted in its assumption that the resistance of those muscles which tend to produce shortening can be sufficiently overcome by posture without aid of extension; and, for example, in case of broken femur, it was only necessary to flex the leg upon the thigh and the thigh upon the body, laying the limb afterward quickly upon the outer side upon the bed.

Von Wahl[13] concludes that since the use of exten-

sion in young children is not possible, treatment is without exception limited to the use of splints. Thin grooved wooden splints generally suffice, well padded and kept in place by a roller bandage, frequently changed to prevent excoriation and dermatitis. He evidently recognizes the value of the "physiologic doctrine" when he writes, if it were possible to devise an inclined plane which would secure both legs in semiflexion and leave the excretory passages free, such a proceeding would be much more rational simply because it is impossible to extend the thighs of the little ones and coapt them to straight splints, and it is consequently hardly possible to abolish the deformity. Happily, such deformity disappears spontaneously in most cases; and even shortening is equalized by increased longitudinal growth more frequently than is generally believed.

Referring to simple muscular relaxation, Erichsen[14] recommends laying the child upon its outer side, flexing the thigh to nearly a right angle with the body, and the leg upon the thigh, and supporting the limb in this position by an angular wooden or leather splint extending from the hip to the knee or outer ankle, and by a short wooden thigh splint.

Schutter[15] commends the plan of Henke[16] of flexing the thigh upon the abdomen, and fixation by strips of rubber plaster carried around the back, the two ends overlapping on the under surface of the thigh, reinforced by a strip of cardboard bent at an angle and placed in the popliteal space to support the leg.

Diagnosis.—The diagnosis, von Wahl[18] considers, is rendered sufficiently certain by the pain, the inability to walk, the shortening and crepitation. He adds: I would merely mention that in young children an angle or bending of the limb, with anterior convexity, is observed, while in older children an external lateral convexity or angle-formation takes place. The reason for this probably lies in the fact that children under 18 months age have not, as a rule, fully extended their thighs, and in the dorsal decubitus maintain a flexed position of the thigh on the pelvis. The weight of the leg carries the lower fragment downward, while the psoas and iliacus muscles draw the lower one upward.

Seat of fracture.—In the forty-four cases here reported the seat of the fracture was located at or above the middle of the shaft, with convexity forward. This confirms the experience of von Wahl,[19] that it is found to occur most frequently in the middle or at least near the middle of the shaft. He remembers only once having seen a fracture above the condyles. Bitter's[17] cases were also at the middle and junction of the middle and upper third.

Direction of fracture.—Holthouse[6] found in children, especially infants, that the bone is not infrequently broken transversely or nearly transversely, or it is serrated or denticulated so that complete displacement is much less frequent, and Erichsen[14] believes the bone is usually broken transversely in young persons. Gross[18] states that the obliquity of the fracture of the thigh in young children is generally less than in adults, and cases are met with in which they are nearly transverse.

Nature of fracture.—In rachitic children the fracture is always incomplete or green-stick, though Starr[8] believes that most cases are of the green-stick variety.

Cause of fracture.—Swinburne recalls three cases of "congenital" fracture out of eighteen cases, one with the humerus also broken. That intra-uterine fracture may occur, Hornidge[6] considers proven by the results of autopsies made by Chaussier who found as many as forty-three and even 112 fractures in the same fetus, depending of course, on imperfect development of the bones or congenital rachitis. Fractures due to external violence or muscular contraction may occur in the healthy fetus. Of Beck's[2] ninety cases, one was the result of intra-uterine injury, one occurred during labor and a third was due to muscular action.

Most authors agree that the majority of fractures of the shaft of the femur are due to direct or indirect external violence.

Time for consolidation and cure.—Kümmel[9] in children, removed the bandages (Schede's vertical extension) after three weeks. Hamilton[11] releases the child from his box in four to five weeks. Holthouse[6] kept the child in bed four weeks and considered it cured on an average in six to eight weeks. Erichsen[14] deems five weeks necessary for firm union in children under 10 years. Gritti,[19] with the horizontal weight and pulley, obtained consolidation in a majority of thirty-eight cases under 7 years on the twentieth day, with a minimum of eleven days in one child, at 1 year, and a maximum of sixty days in a rachitic child.

In all of the cases so treated, the Van Arsdale splint was finally removed at the end of the third week and the child cured.

Shortening.—Whenever we undertake to ascertain the amount of shortening in a limb which has been fractured and union restored, the natural variations in the length of the two limbs in the same person must not be forgotten. Garson,[20] from the measurements of seventy adult skeletons, found the left femur longer in forty-seven cases with an average preponderance of 3.8 centimeters, the right femur longer in twenty cases, average preponderance 2.9 centimeters, and nine in which both femurs were of equal length.

As the result of a careful study of the cases of Warren, Buck and others, Hamilton[12] believes that in fracture of the shaft of the femur occurring in children or in persons under 15 or 18 years of age, the bones may often be made to unite with so little shortening that it can not be detected by measurement; but it must not be forgotten that with children especially, it is exceedingly difficult to measure very accurately, and Erichsen[14] finds that in children union may almost always be procured without any shortening of the bones. But a slight diminution in the length of the limb is in reality of no consequence and gives rise to no inequality in gait; the pelvis, by the obliquity it assumes remedies this. It is only when shortening exceeds one-half or three-quarters of an inch that it is important and occasions deformity.

Lengthening.—The carefully tabulated cases of Kümmel[9] show, in twelve cases ranging from six hours after birth to one year, that consolidation was completed in from seventeen to fifty-eight days, in all without shortening, except in a boy of ten months who on the twenty-second day of the treatment was attacked with measles, and on the forty-third day discharged at the request of his parents. In this case there was one-half a centimeter lengthening of the femur.

In sixteen children between 1 and 2 years old, consolidation was complete in from 17 to 159 days. In the case requiring 159 days, rachitic, there was one centimeter shortening. In three cases there was a lengthening of respectively one, one and one-half, and one and three-quarters centimeters. In twelve cases

between 2 and 4 years old, consolidation took place in 24 to 123 days; ten firm consolidations without any shortening. One (3 years old) showed some sloughing in the middle of the femur; discharged on one hundred and twenty-third day with no shortening. One healed in thirty days, with two centimeters lengthening.

With the above statements in mind the surgeon will do well to remember the advice of Nélaton,[19] that a fracture of the body of the femur with an adult is always a grave accident, especially on account of the shortening which it is almost impossible wholly to prevent. Accordingly Boyer recommends to the surgeon, from the first day, to announce to the parents of the patient the possibility of such accident.

Non-union.—D'Arcy Power[21] collected seventy-one cases of ununited fractures in children under 10 years; seven of the clavicle; nine of the humerus; the leg forty-two; the forearm one, and the femur twelve. The very frequent failure of operative measures to effect union is well illustrated from the fact that firm bony union was secured in but six out of these seventy-one cases. He attributes non-union to: 1. *Errors in diagnosis; a*, in congenital fracture, and quotes a case reported by F. Smith in which during a long labor all the long bones were fractured. All united within six months except the right femur; *b*, in greenstick, sub-periosteal or fractures in fat children. 2. *Carelessness* on the part of parents in seeking skilled advice, or nurse drops the child and is afraid to report the injury, the fracture remaining untreated. Careless splinting or fixation; the injury left to take care of itself. The results of his careful investigations are that the prognosis for subsequent union in children is bad. The ends may be resected, but if there has been much wasting of either end this may prove useless. Fibrous union with artificial support will do for the upper extremity, but only amputation for the lower limb. The prophylactic measures which he insists upon are early diagnosis, maintenance of perfect apposition and immobilization, careful supervision and readjustment with close attention to details.

Advantages.—By the application of Van Arsdale's triangle in fracture of the shaft of the femur in infants and young children:

1. Overlapping is prevented by the flexed position of the thigh, relaxing the muscles.

2. The fragments are held in perfect apposition owing to the nice adjustment of the splint to the thigh, and complete immobilization in whatever position the child may be in.

3. Frequent readjustment is unnecessary, as the dressing is not soiled by the excretions, nor are chafing and dermatitis met with.

4. Complications due to confinement in bed in the dorsal decubitus, such as hypostatic pneumonia and vulvovaginitis are avoided and the liability to concurrent disease prevented.

5. Loss of flesh and strength does not occur, as the child is well and happy; it can nurse at the breast, sit on a chair, play on the floor, even learns to crawl about, sleep on either side, in fact lives a perfectly natural life with the one exception, inability to walk.

6. Under these conditions we are justified in expecting rapid, firm consolidation in three weeks without shortening, and non-union will be rarely if ever met with.

7. For older children and adults the triangle can be strengthened by the use of plaster-of-paris, the flexed position of the limb being the best for maintaining the fragments in apposition, the most comfortable for sitting or lying and other necessary functions, and the most convenient for getting about on crutches.

Conclusions.—1. That of all fractures at all ages, fracture of the femur amounts to between 7 and 8 per cent.

2. In children under 10 years old fracture of the shaft of the femur is not a common injury.

3. Of all fractures under 10 years, it represents about 18 per cent.

4. It is most often located at or above the middle of the thigh.

5. It is most commonly caused by direct violence.

6. The line of fracture is usually transverse, or nearly so, with convexity forward in very young children, and with some outward lateral deviation in older children.

7. As a prenatal accident it has been met with, and does occur during labor.

8. With appropriate treatment adapted to the age of the child, shortening can be practically prevented.

9. In Van Arsdale's triangle we have a simple means for overcoming the many difficulties, preventing complications, and for securing a perectly normal limb.

TABLE 1.—Fracture, femur, percentage at all ages. From tables by Ernst Gurlt.[22 23]

Collator.	Hospital and Dispensary.	Years.	Total all Fractures.	Femur Fractures.	Per cent.
Wallace / Norris \ Leute	Pennsylvania Hosp., Philadelphia, Pa.	1751-1888	1,810	291	16.0
		1838-1849	1,441	195	13.5
	New York Hospital	1839-1851	1,722	280	16.2
Malgaigne	Hôtel-Dieu, Paris	1806-1808	2,347	308	13.1
		1830-1837			
Matiejonsky	Allg. Krankenhaus, Prague	1834-1855	1,086	199	18.3
Middledorpl.	Allerheiligen Hosp., Breslau	1849-1853	325	25	7.5
Lonsdale	Middlesex Hosp., London	1831-1837	1,901	181	9.4
Blasius	Surg. Clinic and Polyclinic, Halle	1881-1856	778	97	12.5
Gurlt, E.	Polyclinic and Hosps., Berlin	1851-1856	1,631	232	14.2
Gurlt, E.	Per Jonathan Hutchinson, from Hosps. and Disps., Lon	1844-1877	51,988	3,243	6.2
	Total fractures		64,979		
	Total fractures, femur			5,051	

In all ages, fracture of femur equals about 1 in 13, or 7.8 per cent.

TABLE 2.—P. Bruns'[1] analysis; 3,986 fractures, by decades.

Ages.	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	Total.
Femur fractures	140	85	65	49	60	73	59	59	23	613
Fractures at all ages	553	614	737	650	582	490	242	139	29	3,986

TABLE 3.—Relative frequency of fracture of femur in children 10 years old or under.

Author.	References.	Source.	Date.	All fractures.	Fractures of femur.	Per cent.
Bruns, P.	Deutsch. Chirurgie. 1882, Lief 27, p. 241.	Middledorpl, Gurlt, Weber, Drozynski.	to 1874	553	140	25.
Packard, J. H.	Ashurst, 1884, Vol. iv, p. 84.	Children's Hosp., Philadelphia.		316	14	4.5
Coulon, M.	Holmes' Sur. Dis. Infancy and Child. 1869, Lon., 2d ed., p. 264.	Hospital Ste. Eugénie.		140	26	18.5
Beck, K.	Virchow and Hirsch, Jahrb. 1886, 21, II, 703.	Baseler Kinderklinik and Polliklinik.		247	90	36.4
Van Arsdale, W.W.		Eastern and Good Samaritan Dis., New York City.	1877 to 1895	843	26	7.5

Total fractures under 10 years 1,599
Total fractures of femur under 10 years 296
Average per cent. femur under 10 years 18.5

TABLE 4.—Eastern and Good Samaritan Dispensary, 1887-95, inclusive.

New patients, adults, viz., all over 10 years	471,712
Children under 10 years	254,036
Total	725,748
Professor Van Arsdale's Division of Surgical Department.	
New patients, over 10 years	51,822
Under 10 years	18,042
Total.	69,864
Fractures at all ages	826
Under 10 years	348
Femur under 10 years	26

Frequency of Fracture of Femur Shaft.

1 in 13 of all fractures under 10 years—7.5 per cent.
1 in 694 of all surgical cases under 10 years.
1 in 6,250 in all departments under 10 years.

Total Fractures of Femur, under 6 Years, Treated.

Van Arsdale's department, splints or bandage	11	
Triangle	15	15
Swinburne's department, triangle	14	
Total during 1887 to 1895	40	
Swinburne's department, triangle, 1896		4
Total treated by triangular splints		83

TABLE 5.—Van Arsdale's cases, fracture of femur.

Number.	Year.	Record number.	Sex.	Nationality. Child.	Nationality. Parents.	Age. Years.	Age. Months.	Treatment.	Remarks.
1	1888	. . .	.	. . .	. . .	.	.	. . .	Omitted.
2	1888	. . .	.	. . .	. . .	.	.	. . .	Omitted.
3	1889	4,057	M.	U. S.	Rus.	1	6	. . .	. . .
4	1890	. . .	.	. . .	. . .	.	.	. . .	Omitted.
5	1890	5,727	M.	Rus.	Rus.	9	.	. . .	. . .
6	1890	7,740	M.	U. S.	Rus.	1	.	Splints	. . .
7	1891	4,385	M.	U. S.	Rus.	.	6	Bandage.	. . .
8	1892	5,037	F.	U. S.	Rus.	1	4	. . .	. . .
9	1892	6,932	.	. . .	. . .	.	.	. . .	Omitted.
10	1892	6,969	M.	Rus.	Rus.	.	.	. . .	. . .
11	1892	7,964	F.	Ire.	Ire.	.	.	Splints	. . .
12	1893	1,548	M.	U. S.	Rus.	1	.	Triangle.	. . .
13	1893	2,249	M.	U. S.	Rus.	1	1	Triangle.	. . .
14	1893	4,761	M.	U. S.	Rus.	1	9	Triangle.	. . .
15	1894	1,328	M.	U. S.	Rus.	4	.	Triangle.	. . .
16	1894	2,387	M.	U. S.	U. S.	2	.	Triangle.	. . .
17	1894	2,970	M.	U. S.	U. S.	5	6	Triangle.	. . .
18	1895	1,135	M.	U. S.	Rus.	.	7	Triangle.	Mal. sanat.
19	1895	1,139	F.	U. S.	Rus.	3	.	Triangle.	. . .
20	1895	1,874	F.	U. S.	Rus.	2	6	Triangle.	Door fell on her 3 days ago.
21	1895	1,923	M.	U. S.	U. S.	1	10	Triangle.	. . .
22	1895	2,333	M.	U. S.	U. S.	1	8	Triangle.	Two weeks old.
23	1895	. . .	.	. . .	. . .	.	.	Triangle.	Omitted.
24	1895	. . .	.	. . .	. . .	.	.	Triangle.	Omitted.
25	1895	5,138	M.	U. S.	U. S.	5	.	Triangle.	. . .
26	1895	5,770	F.	U. S.	U. S.	.	1½	Triangle.	. . .

TABLE 6.—Fractures in children.

Van Arsdale. Under 12 months.	1 to 6 years.	6 to 10 years.	Total.	Per cent.	Region.	K. Beck. Total.	Per cent.
12	112	48	172	50.0	Clavicle	18	7.5
3	19	11	33	9.6	Humerus (upper arm)	52	21.1
2	25	35	62	28.3	Radius, Ulna (lower arm)	44	17.8
. .	10	8	18				
. .	5	2	7		Tibia		
1	. .	2	3	3.2	Ext. Malleolus, Fibula (lower leg)	25	10.1
. .	. .	1	1				
3	23	. .	26	7.5	Femur	90	36.4
. .	3	2	5	1.45	Metacarpus	2	0.8
. .	3	1	4	1.13	Nose	.	.
1	1	2	4	1.13	Phalanx—fingers	3	1.2
1	. .	2	3		Scapula	.	.
. .	1	1	2		Cranium	7	2.8
. .	1	1	2		Ribs	.	.
. .	1	. .	1		Inferior maxilla	3	1.2
. .	. .	. .	. .		Superior maxilla	2	0.8
. .	. .	. .	. .		Pubic arch	1	0.4
23	204	116	343			247	. . .

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THE APPLICATION OF THE AMBULANT METHOD IN FRACTURE OF THE LEG IN CHILDREN.

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BY JAMES PORTER FISKE, M.D.

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NEW YORK, N. Y.

I wish to call attention to the possibility of applying the ambulant method to leg fractures in children, and to discuss the method used and results obtained in fractures occurring in children from the age when they first begin to walk up to the age of puperty, say 14 years. This was discussed, in a measure, by the writer at the New York Academy of Medicine, Jan. 11, 1897, and reported in the *Medical News* Feb. 13, 1897.

When we consider how trying a long confinement is to the young and growing child, how rapidly a general muscular atrophy develops, how easily the onset of anemia presents itself, how insidiously a latent cachexia may develop, the possibility of auto-infection occurring at the site of trauma, we realize to some extent the risks of keeping our fracture cases in bed. A method which admits of a child with a broken leg to be up and about during the first week, and by so doing not only tends to preserve the general condition of the patient, but "promotes a healthy and rapid union of the fragments" (Hartley), should commend itself to all.

Simplicity as regards the form of apparatus used, the weight or cumbersomeness of such apparatus, the use or non-use of crutches and the dependence of the surgeon on the instrument maker, all have to be considered in determining what is the best method of treating fractures of the leg, and after a considerable

between 2 and 4 years old, consolidation took place in 24 to 123 days; ten firm consolidations without any shortening. One (3 years old) showed some sloughing in the middle of the femur; discharged on one hundred and twenty-third day with no shortening. One healed in thirty days, with two centimeters lengthening.

With the above statements in mind the surgeon will do well to remember the advice of Nélaton,[19] that a fracture of the body of the femur with an adult is always a grave accident, especially on account of the shortening which it is almost impossible wholly to prevent. Accordingly Boyer recommends to the surgeon, from the first day, to announce to the parents of the patient the possibility of such accident.

Non-union.—D'Arcy Power[21] collected seventy-one cases of ununited fractures in children under 10 years; seven of the clavicle; nine of the humerus; the leg forty-two; the forearm one, and the femur twelve. The very frequent failure of operative measures to effect union is well illustrated from the fact that firm bony union was secured in but six out of these seventy-one cases. He attributes non-union to: 1. *Errors in diagnosis; a*, in congenital fracture, and quotes a case reported by F. Smith in which during a long labor all the long bones were fractured. All united within six months except the right femur; *b*, in greenstick, sub-periosteal or fractures in fat children. 2. *Carelessness* on the part of parents in seeking skilled advice, or nurse drops the child and is afraid to report the injury, the fracture remaining untreated. Careless splinting or fixation; the injury left to take care of itself. The results of his careful investigations are that the prognosis for subsequent union in children is bad. The ends may be resected, but if there has been much wasting of either end this may prove useless. Fibrous union with artificial support will do for the upper extremity, but only amputation for the lower limb. The prophylactic measures which he insists upon are early diagnosis, maintenance of perfect apposition and immobilization, careful supervision and readjustment with close attention to details.

Advantages.—By the application of Van Arsdale's triangle in fracture of the shaft of the femur in infants and young children:

1. Overlapping is prevented by the flexed position of the thigh, relaxing the muscles.

2. The fragments are held in perfect apposition owing to the nice adjustment of the splint to the thigh, and complete immobilization in whatever position the child may be in.

3. Frequent readjustment is unnecessary, as the dressing is not soiled by the excretions, nor are chafing and dermatitis met with.

4. Complications due to confinement in bed in the dorsal decubitus, such as hypostatic pneumonia and vulvovaginitis are avoided and the liability to concurrent disease prevented.

5. Loss of flesh and strength does not occur, as the child is well and happy; it can nurse at the breast, sit on a chair, play on the floor, even learns to crawl about, sleep on either side, in fact lives a perfectly natural life with the one exception, inability to walk.

6. Under these conditions we are justified in expecting rapid, firm consolidation in three weeks without shortening, and non-union will be rarely if ever met with.

7. For older children and adults the triangle can be strengthened by the use of plaster-of-paris, the flexed position of the limb being the best for maintaining the fragments in apposition, the most comfortable for sitting or lying and other necessary functions, and the most convenient for getting about on crutches.

Conclusions.—1. That of all fractures at all ages, fracture of the femur amounts to between 7 and 8 per cent.

2. In children under 10 years old fracture of the shaft of the femur is not a common injury.

3. Of all fractures under 10 years, it represents about 18 per cent.

4. It is most often located at or above the middle of the thigh.

5. It is most commonly caused by direct violence.

6. The line of fracture is usually transverse, or nearly so, with convexity forward in very young children, and with some outward lateral deviation in older children.

7. As a prenatal accident it has been met with, and does occur during labor.

8. With appropriate treatment adapted to the age of the child, shortening can be practically prevented.

9. In Van Arsdale's triangle we have a simple means for overcoming the many difficulties, preventing complications, and for securing a perectly normal limb.

TABLE 1.—Fracture, femur, percentage at all ages. From tables by Ernst Gurlt.[22 23]

Collator.	Hospital and Dispensary.	Years.	Total all Fractures.	Femur Fractures.	Per cent.
Wallace / Norris \ . .	Pennsylvania Hosp., Philadelphia, Pa.	1751–1888 / 1838–1849	1,810 / 1,441	291 / 195	16.0 / 13.5
Leute.	New York Hospital.	1839–1851	1,722	280	16.2
Malgaigne . .	Hôtel-Dieu, Paris	1806–1808 / 1830–1837	2,847	808	13.1
Matiejonsky..	Allg. Krankenhaus, Prague.	1834–1856	1,086	199	18.3
Middledorpl..	Allerheiligen Hosp., Breslau	1849–1853	325	25	7.5
Lonsdale....	Middlesex Hosp., London. . .	1831–1837	1,901	181	9.4
Blasius	Surg. Clinic and Polyclinic, Halle.	1831–1856	778	97	12.5
Gurlt, E. . . .	Polyclinic and Hosps., Berlin	1851–1856	4,631	232	14.2
Gurlt, E. . . .	Per Jonathan Hutchinson, from Hosps. and Disps., Lon	1844–1877	51,988	3,243	6.2
	Total fractures	. . . . .	64,979	. . . .	. . .
	Total fractures, femur.	. . . . .	. . . .	5,051	

In all ages, fracture of femur equals about 1 in 13, or 7.8 per cent.

TABLE 2.—P. Bruns'[1] analysis; 3,986 fractures, by decades.

Ages.	0–10	11–20	21–30	31–40	41–50	51–60	61–70	71–80	81–90	Total.
Femur fractures . .	140	85	65	49	60	73	59	59	23	618
Fractures at all ages	553	614	737	650	582	490	242	139	29	3,986

TABLE 3.—Relative frequency of fracture of femur in children 10 years old or under.

Author.	References.	Source.	Date.	All fractures.	Fractures of femur.	Per cent.
Bruns, P.	Deutch. Chirurgie. 1882, Lief 27, p. 241.	Middledorpl, Gurlt, Weber, Drozynski.	to 1874	553	140	25.
Packard, J. H. . . .	Ashurst, 1884, Vol. iv, p. 84.	Children's Hosp., Philadelphia.	. . . .	816	14	4.5
Coulon, M.	Holmes' Sur. Dis. Infancy and Child. 1869, Lon., 2d ed., p. 254.	Hospital Ste. Eugénie.	. . . .	140	26	18.5
Beck, K.	Virchow and Hirsch, Jahrb. 1886, 21, II, 703.	Baseler Kinderklinik and Poliklinik.	. . . .	247	90	36.4
Van Arsdale, W.W..	. . . . .	Eastern and Good Samaritan Dis., New York City.	1877 to 1895	848	26	7.5

Total fractures under 10 years 1,599
Total fractures of femur under 10 years 296
Average per cent. femur under 10 years 18.5

TABLE 4.—Eastern and Good Samaritan Dispensary, 1887-95, inclusive.

New patients, adults, viz., all over 10 years	471,712
Children under 10 years	254,036
Total	725,748
Professor Van Arsdale's Division of Surgical Department.	
New patients, over 10 years	51,822
Under 10 years	18,042
Total	69,864
Fractures at all ages	825
Under 10 years	343
Femur under 10 years	26
Frequency of Fracture of Femur Shaft.	
1 in 13 of all fractures under 10 years—7.5 per cent.	
1 in 694 of all surgical cases under 10 years.	
1 in 6,250 in all departments under 10 years.	
Total Fractures of Femur, under 6 Years, Treated.	
Van Arsdale's department, splints or bandage	11
Triangle	15
Swinburne's department, triangle	14
Total during 1887 to 1895	40
Swinburne's department, triangle, 1896	4
Total treated by triangular splints	33

TABLE 5.—Van Arsdale's cases, fracture of femur.

Number.	Year.	Record number.	Sex.	Nationality. Child.	Nationality. Parents.	Age. Years.	Age. Months.	Treatment.	Remarks.
1	1888	. .	. .	. .	. .	. .	. .	. .	Omitted.
2	1888	. .	. .	. .	. .	. .	. .	. .	Omitted.
3	1889	4,057	M.	U. S.	Rus.	1	6	. .	. .
4	1890	. .	. .	. .	. .	. .	. .	. .	Omitted.
5	1890	3,727	M.	Rus.	Rus.	. .	9	. .	. .
6	1890	7,740	M.	U. S.	Rus.	1	. .	Splints	. .
7	1891	4,385	M.	U. S.	Rus.	. .	6	Bandage	. .
8	1892	5,037	F.	U. S.	Rus.	1	4	. .	. .
9	1892	6,932	. .	. .	. .	. .	. .	. .	Omitted.
10	1892	6,969	M.	Rus.	Rus.	. .	. .	. .	. .
11	1892	7,964	F.	Ire.	Ire.	. .	. .	Splints	. .
12	1893	1,543	M.	U. S.	Rus.	1	. .	Triangle	. .
13	1893	2,249	M.	U. S.	Rus.	1	1	Triangle	. .
14	1893	4,761	M.	U. S.	Rus.	1	9	Triangle	. .
15	1894	1,328	M.	U. S.	Rus.	4	. .	Triangle	. .
16	1894	2,387	M.	U. S.	U. S.	2	. .	Triangle	. .
17	1894	2,970	M.	U. S.	U. S.	5	6	Triangle	. .
18	1895	1,135	M.	U. S.	Rus.	. .	7	Triangle	Mal. sanat.
19	1895	1,139	F.	U. S.	Rus.	3	. .	Triangle	. .
20	1895	1,874	F.	U. S.	Rus.	2	6	Triangle	Door fell on her 3 days ago.
21	1895	1,923	M.	U. S.	U. S.	1	10	Triangle	. .
22	1895	2,333	M.	U. S.	U. S.	1	8	Triangle	Two weeks old.
23	1895	. .	. .	. .	. .	. .	. .	Triangle	Omitted.
24	1895	. .	. .	. .	. .	. .	. .	Triangle	Omitted.
25	1895	5,138	M.	U. S.	U. S.	5	. .	Triangle	. .
26	1895	5,770	F.	U. S.	U. S.	. .	1½	Triangle	. .

TABLE 6.—Fractures in children.

Van Arsdale. Under 12 months.	1 to 5 years.	6 to 10 years.	Total.	Per cent.	Region.	K. Beck. Total.	Per cent.
12	112	48	172	50.0	Clavicle	18	7.3
3	19	11	33	9.6	Humerus (upper arm)	52	21.1
2	25	35	62	28.3	Radius, lower arm	44	17.8
. .	10	8	18		Ulna, lower arm		
. .	5	2	7		Tibia		
1	. .	3	3	3.2	Ext. Malleolus, lower leg	25	10.1
. .	. .	1	1		Fibula, lower leg		
3	23	. .	26	7.5	Femur	90	36.4
. .	3	2	5	1.45	Metacarpus	2	0.8
. .	3	1	4	1.13	Nose	. .	. .
1	1	2	4	1.13	Phalanx—fingers	3	1.2
1	. .	2	3	. .	Scapula	. .	. .
. .	1	1	2	. .	Cranium	7	2.8
. .	1	1	2	. .	Ribs	. .	. .
. .	1	. .	1	. .	Inferior maxilla	3	1.2
. .	. .	. .	. .	. .	Superior maxilla	2	0.8
. .	. .	. .	. .	. .	Pubic arch	1	0.4
23	204	116	343			247	. .

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DISCUSSION.

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Simplicity as regards the form of apparatus used, the weight or cumbersomeness of such apparatus, the use or non-use of crutches and the dependence of the surgeon on the instrument maker, all have to be considered in determining what is the best method of treating fractures of the leg, and after a considerable

experience and trials, as regards various methods, I am in favor of the general use of the ambulant plaster-of-paris cast, requiring as it does only a few ordinary roller bandages and a few plaster bandages properly applied. As to the ultimate result in regard to the position and union of the fragments, this method has no advantage over any other method which maintains a perfect reduction of the deformity and affords the necessary protection to the injured limb.

That this ambulant method was practicable to children of all ages was first brought to the mind of the writer by the after-treatment in a case of double bow-legs corrected by osteoclasis. In the summer of 1893 I performed an osteoclasis in a three year old child for double bow-legs, and after correction both legs were put up in plaster of paris extending well up on the thigh. At the end of a week I called to see my little patient, whom I was surprised to find walking about. From that time I have always encouraged this class of patients to walk early, and found as a rule that they were able to walk nicely from the seventh to tenth day after operation. We were already applying this method to simple fractures in older children, and later the ambulant method was carried out most successfully in several osteotomy cases.

How soon should the ambulant cast be applied? is a question often put to us. I believe the earlier the better unless there exists some contraindication. If we can apply an ambulant cast before the occurrence of edema or effusion it is a decided advantage. The value of the early application of the plaster cast has frequently been demonstrated both by the writer and Dr. John McG. Woodbury in the Roosevelt fracture service, and I need but refer you to our statistics of these cases published in the *Medical News*, Feb. 13, 1897.

The same general principles apply in the treatment of leg fractures as in fractures in any other part of the body, and our first duty is to reduce any existing deformity, our second to maintain such reduction by the immediate application of some retaining apparatus, and our third to elevate the limb. This can all be accomplished in most cases by the immediate application of the plaster cast, and at the same time we are adding more effectively to our patient's comfort than by any other means, the comfort of the patient being in direct proportion to the amount of fixation and protection afforded the injured member. We at times meet cases where the reduction of the deformity is difficult, due usually to muscular spasm or obliquity of the fragments, and in these cases we administer an anesthetic and then accomplish complete reduction of the deformity.

The ambulant plaster-of-paris cast is applied as follows: After reduction of any deformity the limb is held by an assistant, the foot being flexed to a right angle, and the foot and leg are bandaged with a muslin roller from the toe-tips to and surrounding the tuberosity of the tibia. This bandage, as well as the cast, may extend in children well up on the thigh, but the effectiveness of the cast as a walking splint depends largely on how firmly it grasps and supports the enlarged upper end of the tibia. Over the muslin roller we apply our plaster bandages in the same manner, building it stronger about the ankle and also at its superior circumference, where in walking it largely supports the weight of the body. No padding is used, the splint exerting equal pressure at all points. A considerable experience in the use of plaster dressings is requisite to have the cast applied in an efficient manner. It has been thought that as the tuberosity of the tibia is not developed to the extent of adult life, the ambulant cast is not applicable to children. This view is entirely erroneous, as I have successfully applied the ambulant cast to all ages and in various conditions, not only fractures of the leg, but in tubercular disease of the ankle joint, after clubfoot operations and after operations about the ankle joint, including resection of the ankle joint, and also in osteotomy cases involving both tibia and fibula.

This then is the truly ambulant method, the patient walking on the injured limb without the aid of crutches, the weight of the body being transmitted from the tuberosity of the tibia to the upper circumference of the plaster cast. As I have stated elsewhere, the advantages of this method of treatment are that the patient is kept up and about, less muscular atrophy occurs, there is less stiffness of adjacent joints, the period of after-treatment is considerably shortened and the general health of the patient is maintained.

Though at some time during convalescence the ambulant splint should be called into play in every fracture of the leg, there are certain fractures and conditions complicating fractures which may prevent the early use of a walking cast. The existence of edema, abrasions, marked effusion or considerable obliquity of the fragments all call for some delay. In compound fractures or where we have any abrasion, we must wait sufficiently long to determine the absence of any infection. Where there is obliquity of the fragments the ambulant cast should not be employed until the fragments are thoroughly glued together in their proper position and ossification has commenced, *i. e.*, about the tenth day. All simple fractures seen early where there is no tendency toward displacement, with absence of edema, call for the immediate application of the ambulant plaster-of-paris cast.

Without presenting any extensive statistics, I will report two representative cases showing in a measure the wide range of cases which can be treated by this method.

Case 1.—Simple fracture middle third of tibia.—F. B., age 6 years. This case was reported to the New York Academy of Medicine, January, 1897. Dec. 11, 1896, while coasting on the snow, he ran into a cart and fractured the tibia just below the middle third. He was taken to Roosevelt Hospital and the leg put up in plaster. He was referred to me one week later, when the dressing was removed and, as the leg was in good condition, the ambulant cast was applied. He reported to me the next day, and as everything was in order, he was instructed to walk. In a few days he not only walked with ease, but rode his velocipede daily.

Case 2.—Osteotomy, Trendelenburg operation combined with orthrodesis.—Louisa Neuman, age 14 years. When very young she had an attack of poliomyelitis anterior, and since then the muscles of the right leg have been paralyzed. For years she has had a flail foot and at present, when she walks, with each step her foot is thrown out and the internal malleolus touches the ground. No apparatus could correct this deformity of years' standing, and fixation of the ankle joint by orthrodesis was advised. This was consented to and the patient was operated on August, 1896. The ankle joint was opened by an external incision and the entire articular cartilage removed. Upon replacing the foot the vicious position of extreme valgus could not be corrected, so the superior third of the inner portion of the astragalus was chiseled away, but this did not correct the deformity sufficiently. Wishing to preserve as much of the tarsus as possible, I determined to fully correct the deformity by the Trendelenburg method, removing a wedge from the lower third of the tibia, performing a linear osteotomy on the fibula and then turning the foot inward until it was in the proper line. This procedure was entirely successful and the foot, leg and thigh encased in plaster. Convalescence was uneventful and on the eleventh day dressings were removed, stitches taken

out and the ambulant plaster cast applied up to the tuberosity of the tibia. This patient commenced to walk on the fourteenth day, and was discharged six weeks after the operation.

I need only add that after operation and complete correction in clubfoot in children who are old enough to walk, as well as in many cases of tubercular disease of the ankle joint, we have used the ambulant cast with the greatest success.

THE EARLY RECOGNITION AND MANAGEMENT OF DEFECTIVE DEVELOPMENT IN CHILDREN.

Presented in the Section on Diseases of Children, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY LOUIS FAUGÈRES BISHOP, A.M., M.D.

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NEW YORK, N. Y.

Too long has the treatment of the defectively developed mind been postponed beyond the age of infancy, and often are individuals thus affected relegated to the hopelessly idiotic group, without a careful study of the possibilities of each. The very poverty of our knowledge of the subject challenges study and investigation. The great variations in degree make it difficult to recognize in early childhood the mildest forms, and the worst cases are so bad that they offer no encouragement to treatment. The cases that require the greatest attention are those in which we can hope to rescue the individual from the class of useless idiots, and by intelligent education place him as an humble member of the productive classes.

The etiology of idiocy has always been a source of speculation. Most lay people and many medical men fall into the habit of concentrating their attention too much on the size and shape of the brain. We have chosen the term defective development rather than idiocy to emphasize the fact that the trouble is quite general throughout the whole economy. The cause of this deep-seated vice of development lies further back than the premature ossification of the bones of the cranium, further back than an unusual smallness of the heart, further back than any noted change in the size and shape of the brain cells, or the number of tangential fibers. The cause to be sought is some force that has influenced that factor, which in our ignorance we term life. Heredity is a strong factor of insanity or imbecility, existing, according to the statistics of Martin W. Parr of Pennsylvania, in 38 per cent. The cases of idiocy due to infantile cerebral disease, such as hemorrhage, are examples of arrested development due to a definite gross lesion. We prefer to consider the more uncomplicated cases in which the defective development can not be traced to accident, infantile cerebral palsy, or the cerebral complications of the exanthemata. The early recognition of defective development is not at all easy. Children differ much as individuals in different families, and also are very strongly influenced by their surroundings. The keenness of their special senses also plays a strong part in rapidity of the mental development. A slight defect of hearing or eyesight in a young child will influence and retard development in a marked degree. I have a number of times had occasion to point out that an apparently idiotic child was only defective in sight or hearing. Curiously enough, however, some of the children who on careful examination prove to be markedly defective, have every appearance of being the brightest children. Probably the most troublesome cases and those that are the most difficult to improve are the active, restless and physically strong. It is impossible to fix the attention of these children and they are absolutely lacking in that power of plodding work that often does so much for some dull cases.

One of the saddest things that can happen to a defective child is that he should be placed under the educational influences of a large school in competition with children of normal abilities. Under such circumstances, as time goes on, a defective child gradually drops farther and farther behind until finally he is associated with children much younger than himself. This breeds discouragement, recklessness as to behavior, and mortification of spirit, or what is just as bad, callousness. The defective child should be trained with a definite view of accomplishing the possible. If the child is almost imbecile the training should commence in a purely physical direction, and the child should be taught to perform at first a few definite acts, as a trade, or certain household duties. The capacity of the child must always be borne in mind. The defective child must be taught many things that in others come from observation and example. The defective child is taught with great difficulty the care of its clothing and the minor civilities of life that to a bright child come almost without teaching. More difficult and more serious even than the development of mind is the development of character. Stubbornness and perversity of disposition are more often a manifestation of defective development than they are of an inheritance of strong characteristics from the parents. The defective child is unable to subdue its own personality and unable to recognize the authority of others. The question of how to meet this difficulty is of very serious import, and will tax to the greatest degree the tact and intelligence of those who have the responsibility of its training. But the principles applicable to the defective child are not different from those of education in general. Indeed, the study of the defective has often thrown light upon the whole field of education. Severity is certainly wrong. The principle so strongly advocated by Spencer, that the child should be allowed to suffer the consequences of its previous acts are applicable to a degree, but a defective intelligence renders extreme application impossible. Undoubtedly the most rational treatment of such children is to disregard as much as possible all previous acts and perversities of temper, and by constructive efforts in the directions of those abilities and faculties that the child has to counteract as much as possible the evil tendencies. The question of responsibility is not easy to decide, but certainly the defective child is not to be held accountable for those acts that are evidently the outcome of its condition. The symptoms of the defective do not always differ in quality from the ordinary defects of most children. It is more a difference of degree. A child subject to occasional outbreaks of ungovernable temper, or even frequent perversity of will, should not be decided to be defective; but when this is accompanied by the extreme restlessness of manner, the inability to fix the attention, and perhaps physical signs, the diagnosis is easy to one of any experience. With the history of a cause or the presence of recurrent convulsions, the diagnosis of defective development may be certain. The close study

given, of late years, to the development of children by intelligent mothers, nurses and educators, who from time to time meet to consider the interests of children, may throw light on the normal and abnormal child's mind that may in the future make the very early recognition of defective development easier. At the present time it must be based to a large extent upon a balancing of probabilities and upon the ripe experience and the trained judgment. Fortunately there is nothing in the management or treatment of the defective child that would in any way prejudice the future of a child, in the case of a mistaken diagnosis. On the other hand much harm can be done to the prospects of development if the defective child is wrongly managed in its earlier years, and its condition only recognized when the manifest difference from its fellows becomes evident through the application of an educational system that has already worked upon it the greatest hardship.

THE CARE OF THE BABY'S EYES IN THE PERAMBULATOR.

Presented in the Section on Diseases of Children, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY MARY E. BALDWIN, M.D.

NEWPORT, R. I.

The matter to which I call your attention, the baby's eyes in the perambulator, is one epoch in the life of many children that seems absolutely to have been ignored. I say many children! The very poor are not luxuriating on wheels. They have a possible contact with mother earth, or with a pavement. Again they get the air on the hip of an older sister. Children born in the other extreme of worldly position are not so often in a baby cab.

In the maternity, the nursery and in the school, the young eyes have received intelligent attention with preventive suggestion and remedial treatment.

The first bright spring days are hailed by invalids and almost anybody's baby is then given a breath in the fresh air. The invalid is apt to have a veil, colored glasses, a close carriage, a sunshade, etc. For this outing the baby of fairly well-to-do parents in America may have in order of time the third special outlay for sweet daintiness. The toilet basket and the Christening robe have or have not preceded. The perambulator with its umbrella top may be the first real treasure the parents secure for the baby. It is as important as the coming-out dress of the *débutante*, or the first dress suit. What is it? Of rubber tires and the various springs, I will not speak. Would that many adults might have had an outing some glorious morning in the past three months in an enlarged baby cab. This means an intense white reflex from the blanket, much farther from the eyes than could possibly be arranged for the baby. An ever changing parasol is professedly protecting from wind and sun. What does this creation of lace and flummery really do? The average parasol for the baby cab is covered with figured white lace, or thin white material that is gathered. The lining may be fairly opaque and of neutral tint. Often the covering is of such a combination of texture and color as to give through it, in bright sunshine, a mottled light. The edge is finished by a fringe or by a ruffle, something that can wave and flop, and usually it does this so that it not only gives a changing object before the child, but at the same time throws the sunshine or light of varying intensity into the face.

With the joltings from various causes, including the curbstones and the temper and thoughtlessness of the attendant, the parasol top and a white blanket to give a reflected light, there is a sorry combination. If my picture does not appeal to each one of you, I beg you to call upon your memory and put your eyes in the place of the baby's. If your attention has never been arrested by the squinting babies, will you not observe them in their perambulators?

During the short, cold and comparatively sunless days, the young child is apt to be kept indoors. The adult likes a breath of spring warmth, and gets it with an outing for the baby. From the shaded room to the unshaded street the transition is greatest for the infant, during the spring months. When summer heat comes, the care-taker will seek the shady side of the street or the protection of trees.

The ocean beach with the near sand and the far reach of sky and dancing water needs consideration, if the baby, well or sick, is to be sent to it.

Without actual demonstration, it seems most probable that an obscure etiology may often be traced to the conditions to which I have had the honor of calling your attention. Does not the probability assume so much the aspect of a certainty as to demand a widespread protest and warning. This is my reason for wishing even at this hour to enlist your interest. Grant you I certainly do, that this touches a most fruitful means of gratifying the vanity of the younger or the older mother or even of the devoted father. Twenty-five years ago, imagine if you can the horror with which we would have looked upon a dozen well-bred daintily dressed children wearing black stockings. Put a dozen daintily dressed children on the street today with white stockings and they will attract every eye.

If the parents are convinced that danger threatens the babies from the present vanities of their cabs they will accept a remedy, a prevention; make the prevention a fad, a fashion, and all is accomplished. Taking for granted that every doctor will be convinced as soon as his own eyes have been taken for an imaginary outing with those of the baby, every baby carriage will soon be dressed in opaque and soothing color, with no tilting canopy, flying frill or sharply reflecting robe.

DISCUSSION.

Dr. J. J. TAYLOR—Usually the iconoclast lays the way for the reconstructionist, but sometimes we have the iconoclast and the reconstructionist in the same individual. The Doctor has destroyed our baby carriage, but she has also given us some idea as to the proper kind of a baby carriage.

Dr. BALDWIN—I am very glad of the opportunity to speak of the remedial measures, although I can not say I have sufficiently formulated them not to be open to some modifications. I am told the English cabs have a top that shoves down, a good deal like the street cabs in America. Occasionally I have seen those in America. They are usually in some dark color. I am told, also, that the English cab has a dark colored robe. I think we seldom see a physician here riding with a white lap robe. Recently, in speaking on this subject, a physician said, "O, you will never get our mothers to dress their children in green." But I do not believe the mothers can keep the top of the perambulator in such a position as to be of any advantage to the child. I think a cover that will give a steady light is much better. I would have no lace and no frill that can be constantly changing its position. In the nursery we have been told the children should not be given things near the eyes, and that the light should not come into their eyes directly, and that

at no time should they be employed with anything small. But the very first season, when the child goes in the perambulator, these rules are lost sight of. I would take away the irregular light, I would plant no flapping thing on the carriage, and I would have no white light reflected into the infant's eyes.

THE INFLUENCE OF OUR SCHOOL SYSTEM ON THE HEALTH AND DEVELOPMENT OF THE CHILD.

Presented to the Section on Diseases of Children, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY E. STUVER, M.Sc., M.D., PH.D.

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RAWLINS, WYO.

The strength, happiness, prosperity and stability of nations and races almost entirely depend on their hereditary heritages and their ability successfully to adapt themselves to their environment.

The whole history of man's development from the earliest times conclusively proves that his highest welfare is conditioned on the harmonious development of all his powers, physical, intellectual and moral, and that when one or more of these have been slighted or neglected, he has paid a dear penalty for such neglect.

Glancing down through the ages, we behold untold misery and innumerable wrecks caused by the violation of this inexorable law of nature. Here we see ignorance or disregard of sanitary laws followed by pestilence, disease, lowered vitality, degeneration and extinction; there we behold licentiousness, debauchery and immorality in all its varied forms, produce a similar result. Nor are the most striking examples taken from savage or barbarous peoples, but furnished by the greatest and most powerful nations the world has ever known.

The observance of these developmental laws raised Greece to the pinnacle of intellectual greatness and physical perfection; their violation reduced her to an insignificant dependency and to a position of subordination, which she is now making a gallant effort to overcome. Physical, intellectual and moral integrity made Rome the mistress of the world and the Roman name honored and feared everywhere, but the loss of the virtues which made her great was the signal for her downfall, and now there remains only the name of her former power, grandeur and glory.

Such examples as these should cause us, as a nation, to pause in the midst of our wonderful career and consider some of the dangers that threaten us, and at the same time carefully examine our bulwarks of defense and see whether they are in a condition to resist any or all attacks that may be made against them.

We have always boasted, and justly too, of our National system of popular education, and repose greater confidence, as a means of defense, in the intelligence, freedom and patriotism of our people, than in immense standing armies and monster iron-clad ships. While nearly all will admit that our public school system is a strong bulwark of defense, and has been a potent factor in molding our National character, developing our institutions and promoting our material welfare, still the question naturally arises, have these results followed as the consequence of our educational methods, or have they been largely due to the inherent force of character, mental acumen and physical integrity of the hardy pioneers who laid the foundations of our Nation, and to whom is due much of our greatness as a people?

The highest happiness and welfare of a nation or a people is in direct proportion to the highest happiness and welfare of the *great* majority of the individuals who compose it; and the greatest welfare of the individual depends upon the inheritance of a strong, well balanced organization and the symmetric and harmonious development of all his powers; in short, in order to attain the most complete living he must be perfectly adjusted to his environment. To accomplish these results an educational system must provide, in the first place, for a strong physical organization on which to work. Sanitary, hygienic and dietetic laws should be thoroughly understood and their principles carefully inculcated. Every parent and teacher should be strongly impressed with the truth that a "sound mind in a sound body" is a *sine qua non* in every case, if enduring results are desired or expected. Every one, and especially teachers, should understand that plain, nutritious and unstimulating food, an abundance of sleep, and plenty of free, unrestrained exercise in pure air, away from the formality and routine of the schoolroom, where the spontaneous activities are given free play, are of the greatest possible value to the child. They should not only know, but put into practice, the truth that proper food, plenty of oxygen, and frequent periods of relaxation in which to rest and change the activities of the brain, are of infinitely greatar value to the child than the details of geography or history, or the memorizing of rules of grammar or arithmetic, frequently drawn from principles they do not understand. Then, too, teachers and all those who have the direction of the intellectual and moral training of children, should have a clear and comprehensive knowledge of the laws and principles underlying and governing the development of the brain, as well as the mental and moral faculties of the child. They should know that the brain of the child, as compared with that of the adult, contains a larger percentage of water, is more unstable, more easily irritated, and that as a consequence, long continued, monotonous work not only fails to strengthen it, but, on the contrary, weakens the mind, besides producing irritation of the brain, with a lowering of the vital powers and retardation of the physical development. They should understand that the motor centers, which preside over and control muscular movements, act much as storage batteries, that is, they store up nerve force, which is almost constantly being discharged and producing muscular movements. The proper development of the muscular system being the foundation on which muscular strength and integrity depend, nature has wisely, by the automatic discharge of nerve force, to a large extent removed muscular development from our volitional control. We might just as well try to compel a normal, healthy child to stop breathing, as to remain quiet for any great length of time. The nerve force accumulating in its motor centers has just as specific and important a function to perform as that which regulates the activity of its respiratory organs. If teachers understood this fundamental physiologic truth, together with the fact that the inhibitory brain centers, as well as the paths of association which connect them with the motor centers, are in an undeveloped condition, thereby necessitating the discharge of nearly all nerve

force in muscular movement, and that when the attempt is made to frustrate this provision of nature the effort at inhibition not only requires much brain power, which should be used in quiet thought and study, but that it produces irritation of the brain and weakens the mind, they would not commit the very common error of trying to compel young pupils to concentrate their attention on one subject or remain quiet for a long time.

Teachers who understand the natural order of evolution of the faculties can assist nature in directing the mind in proper channels and help strengthen and develop the various mental powers at the proper time and in the proper manner. Activity is the normal healthy condition of the human mind, and if this activity be properly directed mental work should be a constant joy, a source of the greatest pleasure and happiness to the learner. Show me a school where the pupils dislike their work, where everything is regarded as a disagreeable task and evaded or performed as a matter of routine, and I will show you a school where dreary drudgery and dead formalism have taken the place of generous enthusiasm and noble aspirations; where the laws of mental and physical growth are outraged and the moral nature is being warped and distorted, and in charge of that school you will find a teacher entirely unfitted for his or her work and who is lowering one of the grandest vocations to the level of a mercenary calling.

Every educator should appreciate the fact that in its development the child is an epitome of the development of the race. It passes through savage, barbarous and semi-civilized phases of development with many of their attendant impulses and passions before reaching that culture and refinement represented by our best civilization. In view of all these facts the proper training and education of a child is a most difficult thing and demands on the part of the teacher natural ability for the work, a thorough education and careful professional training, besides an accurate and comprehensive historic knowledge of the mental and moral evolution of the race and a careful observation and study of these faculties in the child.

While educators are being profoundly stirred on this subject and "child study" is receiving much attention and creating great interest, still the fact remains that the great mass of teachers know very little about it; indeed, it is a deplorable fact that the great majority of teachers in our public schools have never had adequate professional training of any kind (only about 15 per cent. have taken a course of training in normal schools, see *Forum*, April, 1896, page 179), and many lack that thoroughness of education necessary to make them first-class teachers. Under these conditions, is it any wonder that the courses of study formulated and the methods of instruction pursued have been either injurious, barren of results or failed to produce that highest good which should be the aim of all education.

To obtain a consensus of opinion on the influence of our school system on the health and development of the child, I addressed to about one hundred and fifty of the leading educators and physicians of the country the following questions:

1. Do you think our present comprehensive course of study is best calculated to develop the highest physical and intellectual powers of the child?
2. How long do you think continuous school sessions should be?
3. What is the longest time that should be devoted to a single recitation? *a*. In primary grades; *b*, in grammar grades.
4. How often should pupils have recesses or periods of relaxation?
5. Which do you think are more beneficial, open-air recesses with spontaneous play, or formal indoor exercises consisting of calisthenics, etc., and why?
6. To what extent does the practice of denying pupils the privilege of attending to the calls of nature or of punishing them for the exercise of this privilege (by making up for the time so lost, etc.) exist in the schools? *a*. What do you regard as the moral effect of such a practice on the child? *b*. What physical evils may or do follow it?
7. What effect does "home" study, outside of school hours, have on children, and especially on girls during puberty?
8. What should be the outside limit of such study for: *a*, grammar school pupils; *b*, high school pupils?

One hundred and five answers were received: Sixty-nine from educators, including college presidents, professors in colleges and normal schools, superintendents of city schools, principals of graded schools and others eminent as educators; also thirty-six from physicians who occupy professorships in our leading medical colleges or have distinguished themselves as general practitioners or specialists whose work is among children, or who have large opportunities to observe the effects of school work upon the health of those who have recently passed through or who are now pursuing a course of study in the schools of the United States. As you will notice, the answers come from all sections of the country, and as a consequence the results of the investigation which I herewith subjoin, do not possess a mere local significance.

Answers to No. 1.—Sixty-three of the sixty-nine educators answered this question as follows: Yes, fifteen; no, twenty-nine; doubtful, eighteen, with one no to first part and yes to the second part.

Prof. Joseph Baldwin, LL.D., Austin, Texas: No. Many modifications are demanded.

Prof. Edward Brooks, LL.D., of Philadelphia, Pa.: Yes. The course in the elementary schools is not too comprehensive and does not interfere with the physical development of the child.

President George Stockton Burroughs, LL.D., of Crawfordsville, Ind.: No. Too many subjects are handled at once; the physical neglected.

Prof. William A. Cate, M.S., of Fountain City, Tenn.: Too many studies are carried at one time. I do not find so much fault with the comprehensiveness of the courses of study, however, as I do with the everlasting cramming in teaching.

President Alston Ellis, LL.D., of Fort Collins, Colo.: No. Course of study in higher grades too pretentious.

President Charles W. Eliot, LL.D., of Cambridge, Mass.: Courses are now in stage of transition, are being revised and enriched and will result in a comprehensive and better course.

Principal J. M. Green of Trenton, N. J.: I do not. I think it contains too many subjects, as generally laid out.

Supt. J. M. Greenwood, A.M., of Kansas City, Mo.: In general the schools are overcrowded with studies.

President G. Stanley Hall, Ph.D., of Worcester, Mass.: It needs great reconstruction.

Prof. Mark W. Harrington, LL.D., of Seattle, Wash.: Probably best for pupils treated collectively. Better means could be applied to pupils treated individually.

Supt. L. H. Jones of Cleveland, Ohio: I am a believer in liberal and comprehensive course of study.

A. A. Johnson, D.D., of Laramie City, Wyo.: Yes, if proper attention is given to hygiene and physical exercise.

Prof. Joseph W. Mauck, LL.D., of Vermilion, S. D.: I believe it would be better if less comprehensive and more intensive; more thorough grasp of a few subjects and less distraction and anxiety from a multiplicity of studies.

President George L. Osborne, LL.D., of Warrensburg, Mo.: The early part of the course deals too much with books and not enough with nature. It is also defective in its cultivation of the power of expression.

William H. Payne, LL.D., of Nashville, Tenn.: There is a tendency to injurious high pressure.

Col. F. W. Parker of Chicago.: There are a great number of courses of study and few are adapted to the growth of the child.

Mrs. Frances E. Ramsey of Westport, N. Y.: Emphatically, no! There is danger of superficiality as well as physical degeneration through feeding the brain at the expense of the body.

President Charles Super, LL.D., of Athens, Ohio: I do not, most emphatically.

Nathan C. Schaeffer, LL.D., of Harrisburg, Pa.: Everything depends upon the teachers employed.

Charles F. Wheelock, B.S., of Albany, N. Y.: No. We teach too much and permit the child to develop too little.

Rev. F. R. Wotring, D.D., of Berthoud, Colo.: No. Too much pouring in and not enough drawing out, though there has been a great improvement in recent years.

President Irwin Shepard, A.M., Ph.D., of Winona, Minn.: Yes, if wisely administered.

Thirty-five physicians answered this question (No.1) as follows: Yes, two; no, thirty-two; doubtful, one. The following are some of the opinions expressed:

Prof. Henry M. Brown, M.D., of Cincinnati: Not by any means; too hard on the nervous system.

Prof. N. P. Dandridge, A.M., M.D., of Cincinnati: No. I regard our public school system as defective in many ways.

Prof. N. S. Davis, M.D., LL.D., of Chicago: No; because it taxes the mind with too many studies and prevents thoroughness in any.

George M. Gould, M.D., of Philadelphia: Not by any means. Our modern system of education is the offspring of vanity and sin, for which our future world will justly curse us.

Prof. C. H. Hughes, M.D., of St. Louis: No. It is too exhaustive, overtaxes the perceptive powers and dwarfs the reflective. The tension on the physical centers is beyond their responsive powers and powers of body and endurance.

Prof. Frank Parsons Norbury, M.D., of Jacksonville, Ill.: I am opposed to the present method of conducting primary grades, very large classes and crowding together.

Prof. C. D. Palmer, M.D., of Cincinnati: No. One of the most serious effects of our modern school education, especially in the more advanced grades, is the multiplicity of studies crowded into any course, for the result is that a very imperfect and superficial information is obtained with nothing done in a thorough manner. A few things learned well are infinitely better than many learned superficially. Bad habits of mental training are induced by skimming over branches. Good habits of study and strength of mental discipline come only from thoroughness.

Prof. Theophilus Parvin, M.D., LL.D., of Philadelphia: I do not believe in a common education for boys and girls. They have or ought to have different work or calling in life and the education should not be the same in many departments of study. Of course, it follows that co-education can not be. On moral grounds, too, I am unfavorable to such education. Not only sex but the individual is disregarded in our system of public education.

Prof. Thad. A. Reamy, M.D., LL.D., of Cincinnati: No. They are not taught to think and observe.

W. H. Short, M.D., of La Grange, Ind.: There are too many branches in one grade: too much required in all grades, especially primary grades, *e.g.*, arithmetic contains too many written exercises and examples which never occur in business, and fractional numbers of large and unusual terms which weary and bewilder, and when written analysis is required a child of only average ability, in almost every case, is compelled to accomplish this at home. If we had teachers of discretion who would cut out half of the text-book and instead give the classes, simple practical business questions, both mental and written, much would be gained. Instead of some conception of the simplest laws of mathematics, children are misled with rules and puzzled by hard questions until they neither know what they are trying to learn nor what powers they are trying to use, and so in other branches. *Too much attention is given to details.*

Henry Ling Taylor, M.D., of New York City: Not as I am acquainted with it.

Henry E. Tuley, A.B., M.D., of Louisville: The curriculum in the public schools in this city is very good.

De Forest Willard, M.D., of Philadelphia: Fewer branches would yield better results.

Prof. James T. Whittaker, M.D., LL.D., of Cincinnati: I think there is too much study from books and too little from nature.

Wm. Jay Youmans, M.D. (Editor Popular Science Monthly), New York City: No. It includes too much, forestalling the exercise of the thinking faculty. I am not an admirer of our school system as now organized. It is artificial to the last degree; while healthy development, both bodily and mental, is a natural process that is oftener defeated than promoted by the school.

Augustus P. Clarke, A.M., M.D., of Cambridge, Mass.: Not for the average child.

Prof. Leonard Freeman, B.S., M.D., of Denver: No. There is too much systematic study and too little systematic physical culture.

Prof. J. A. Larrabee, M.D., of Louisville: The course of study and requirements between eight and twelve years is too laborious, exacting and voluminous.

Answers to No. 2.—One hundred educators and physicians answered this question, and while there is considerable diversity of opinion among them the average length of a session without outdoor, open air recess, advocated, is from one to one and one-half hour. Many insist that the sessions should be shortened and more time given to physical culture.

Answers to No. 3.—Just one hundred answers were likewise received to this question, and while there is considerable divergence between them, the great majority advocate recitations, in the primary grades, of from ten to twenty minutes in length, and in the grammar grades from twenty to thirty minutes. It is urged, very justly too, by many of the respondents that the length of the recitation should be governed to a large extent by the subject, the method of instruc-

tion and the kind of teacher in charge of the class; that a good teacher would be able to maintain the interest of the pupils for a longer time and attain good results, while under the charge of a poor teacher, this interest would not be secured, they would soon tire and be more injured than benefited.

In this connection I desire to insist that whenever the children of a class in their efforts to follow the recitation, become tired, or it requires a strong effort of the will to keep their attention on the work in hand, it is time to stop. If this limit be exceeded the unstable brain will be injured and infinitely more harm than good be done. The custom of requiring pupils of 11, 12 or 14 years of age to spend two hours or more continuously on a single recitation, review or examination of one subject as is sometimes done, is not only a gross violation of all mental laws and is *prima facie* evidence of ignorance or heartlessness on the part of the teacher, but is at the same time barren of results; because it is a well established fact that impressions made on a tired brain are very evanescent in character and the effort required to concentrate the attention in such a condition has a very enervating effect on the mind.

Answers to No. 4.—The importance of relieving the strain on the brain and allowing it to equalize its energies; that is permitting the stored up nerve-force of the motor centers to discharge itself in muscular activities while the higher brain centers are resting and accumulating force to carry on their proper work, is being recognized by the best educators and physicians who advise frequent periods of relaxation and play.

In response to this question I quote the following:

Prof. Joseph Baldwin, LL.D., of Austin, Texas: Every hour.

Prof. Edward Brooks, LL.D., of Philadelphia: Each hour to once in each half daily session, according to grade.

Pres. Chas. W. Eliot, LL.D., of Cambridge, Mass.: As often as once an hour in all grades.

Supt. J. M. Greenwood, A.M., Kansas City: Two regular recesses of fifteen minutes.

Pres. Geo. L. Osborne, LL.D., of Warrensburg, Mo.: Very young pupils at least once in thirty minutes; upper grades once per hour.

Pres. G. Stanley Hall, Ph.D., of Worcester, Mass.: If practicable, a little every hour.

Supt. L. H. Jones, of Cleveland, Ohio: Once in about one hour.

Prof. G. W. Patrick, Ph.D., Iowa City: Every hour.

Col. F. W. Parker of Chicago; A short period, between every two recitations, of music and gymnastics; fifteen minutes outdoor play in the morning session.

Mrs. Frances E. Ramsey of Westport, N. Y.: After each recitation if practicable.

Prof. W. J. Stevens, M.A., of Carthage, Mo.: At least every forty-five minutes.

Prof. Wm. H. Smiley, A.B., of Denver: Best work would be done with opportunity for free movement every hour for five minutes.

Pres. Z. X. Snyder, Ph.D., of Greeley, Colo.: Every hour or so.

Nathan C. Schaeffer, LL.D., of Harrisburg, Pa.: Twice each day and noon intermission.

Prof. Irwin Shepard, A.M., Ph.D., of Winona, Minn.: Every hour.

Pres. Alfred Holbrook, of Lebanon, Ohio: Every hour a short recess of ten minutes.

Prof. N. S. Davis, M.D., LL.D., of Chicago: Once in the middle of each daily session.

Prof. J. T. Eskridge, M.D., of Denver: Every hour, or at most every two hours.

Geo. M. Gould, M.D., of Philadelphia: Every hour.

I. B. Parkins, M.D., of Denver: At least once in afternoon and forenoon.

Prof. James T. Whittaker, M.D., LL.D., of Cincinnati: In the middle of each session.

Elizabeth K. Matthews of Des Moines: At the close of every lesson or study period.

Answers to No. 5.—In the whole range of educational subjects there is no question more fraught with important consequences to the child than that of proper sanitary surroundings and ample provision for healthful outdoor exercises. As previously indicated the brain of the child is unstable and easily irritated; nerve-force rapidly accumulates in the motor-centers and unless frequent opportunity be given for its discharge in muscular movements, the attempt to inhibit the movements by will power, will not only set up irritation of the brain, make the child peevish and unamiable, injure its health and interfere with its proper physical development, but will at the same time weaken the mind and defeat the very object for which long sessions are intended, viz., the accomplishment of the largest amount of work in a given time.

Oxygen is necessary to produce nerve-force (Spencer: "Principles of Biology," Vol. I, p. 50), to stimulate the respiration and the circulation of the blood, to develop the muscular system and to destroy the poisons constantly accumulating in the body. No room with from forty to sixty pupils can be occupied much over an hour and the air be fit to breathe without dangerous draughts being created; consequently, pupils should have a fifteen minute, open air, outdoor recess in the middle of each long session. During this recess the windows should be thrown open and the room thoroughly ventilated, the foul emanations eliminated and the air vitalized. This outdoor exercise is best for the child because it removes him from the monotony, formalism and routine of the schoolroom and enables him, yes, compels him to inhale full draughts of nature's life-giving element, pure air, to free his system from accumulated poisons and spontaneously to develop his powers and adjust himself to his environment. A properly conducted recess not only increases the sympathy and fraternal feeling between pupils, increases their physical strength and enlarges their intellectual and moral horizons, but draws them closer to Mother Nature, the source from which to derive inspiration. The recess too gives pupils an opportunity to attend to the calls of nature which under other conditions would be neglected, because, as pointed out by Durante (*Medical Age*, Oct. 10, 1896, p. 601) "the sigmoid flexure in children is of much greater length than in the adult; the nervous forces also are not yet as well regulated; so the child does not feel the need of an evacuation" and, therefore, children are more apt to put off or disregard these calls of nature than they are to abuse their privileges if permitted to leave the room whenever necessary.

The recess too, to a large extent, prevents withdrawals from the room during the school sessions and in this way much disturbance is avoided and good order promoted. The objection to the recess on the ground of immorality is, in my opinion, not well founded, because there is much greater danger of

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immoral practices being carried on when a few pupils are excused from the school at the same time during the sessions than when all are let out together at the general recess. I do not wish to be understood as being opposed to calisthenics and gymnastic exercises. On the contrary, I regard them as of very great value and deserving of a place in every school. What I do wish to insist on, however, is that they should be used in connection with, but not displace, the regular out-door recess. In the advanced sheets of his new work, kindly sent to the writer, the distinguished author and educator, Prof. Joseph Baldwin of Austin, Texas, writes as follows:

PLAY AND GYMNASTICS.

Play is eminently hygienic.—"Recreation makes the best work possible. The kindergarten by utilizing play has made a large contribution to the well being of the race. Work fatigues, exhausts the brain cells; play is recreation for it is free, spontaneous activity. It breaks the spell of work and care. From infancy to age play is a boon to all workers. A self while taking recreation relaxes effort and roams fancy free. Thus the tired brain is given time to recuperate. The men of thought as well as the men of action, double their efficiency by taking regularly helpful recreation."

School work is education when pupils are fresh.—"Drudgery hurts and does not help. Work and then play is the divine plan. We may easily quadruple the value of our schools by studying to keep the pupils fresh. Strong men find recreation a necessity; how much more must immature pupils play as well as work and thus grow. He who helps to lead the school world to play wisely deserves to be crowned as a benefactor."

Recess at the close of each hour is the perfect economy.—"The hygienic and educative benefits of the hourly recess are incalculable. Young children soon become fatigued and so we make their periods of work very brief. The periods of work are lengthened as the pupils advance. The fatigue limit is a great practical study. Much may be done to keep pupils fresh by having easy work follow difficult work. Change rests, but frequent periods of absolute freedom are indispensable. In schools of the future it is believed a recess of ten minutes will be given at the end of each hour."

Play in open air is most hygienic.—"Suitable play grounds with the best play-provoking facilities may safely be counted among the most hygienic agencies. All real play is essentially free and spontaneous, yet at no time is a wise supervision more important than during play. Hurtful plays may be discouraged and the most helpful plays fostered. The teacher feels the play impulses and so guides by suggestion without abridging freedom and spontaniety. Well ventilated, well lighted and commodious play rooms for use during inclement weather are remarkably helpful when the supervision is judicious. However great the cost, these play rooms pay largely in increased pupil vigor."

Systematic physical culture is indispensable.—"In our best schools physical culture goes side by side with mental and moral culture. Graded physical exercise gives pleasure, gracefulness and vigor. During the pauses pointed suggestions are given in practical hygiene. The gymnastic exercises when adapted to the pupils and well managed are educative as well as hygienic. They develop habits of exact obedience, train pupils to work in harmony with others and give artistic command of the body. *Gymnastics require considerable will effort, and hence do not take the place of the spontaneous plays of the recess.* (Italics ours.) The Germans emphasize systematic gymastics but neglect play. The English exalt play but neglect systematic physical culture. The Americans and the French after the fashion of the Greeks, emphasize both play and gymnastics."

In contrasting romping and calesthenics Prof. Frank H. Hamilton (see *Lancet-Clinic*, Oct. 31, 1896, p. 477) speaks as follows: Calisthenics may be very genteel and romping very ungenteel, but one is the shadow, the other the substance of healthy exercise. Girls need health as much, nay, more than boys. They can only obtain it as boys do, by running, tumbling; by all sorts of innocent vagrancy. At least once a day girls should have their halters taken off, the bars let down and be turned loose like young colts.

Out of 105 answers to this question all except four strongly advocate out-door exercise or a combination of calisthenics and the old-fashioned recess. Following are some of the replies received:

Henry S. Baker, Ph.D., of St. Paul: In city schools calisthenics are infinitely better.

Prof. J. E. Brate, A.B., of Fostoria, Ohio: The former; they tend to relieve necessary formality of room and give nature's best tonic, pure air.

Prof. Warren Darst of Ada, Ohio: Open air, better air, usually more hearty, freer minds, more restful, therefore more free from restraint. Cultivate a free spirit favorable to free institutions, more self-control and self-reliance among pupils.

Prof. C. C. Emigh of Fort Collins, Colo.: Out-door, wild, free, innocent, natural play at what pleases the individual pupil best. Calisthenics require close attention.

Pres. Alston Ellis, LL.D., of Fort Collins, Colo.: I favor both, the open-air recesses preferred. Calisthenics at close of recitation.

Pres. Chas. W. Eliot, LL.D., of Cambridge, Mass.: I would insist on both. If I could have but one I would prefer recesses with spontaneous play.

Prof. L. C. Greenlee, A.M., of Denver: Open-air recesses: 1. Pure air. 2. Not so fatiguing. 3. More natural to child, and relaxation more complete.

President Graves, A.M., Ph.D., of Laramie City, Wyo.: Open-air recesses and all pupils, unless real invalids, should be obliged to go out every time. I do not believe there is anything like getting good oxygen into the lungs and getting the benefits of sunshine.

Supt. J. M. Greenwood, A.M., of Kansas City, Mo.: Open air; no indoor recess can take the place of the regular old-fashioned spontaneous recess.

J. H. Miller of Lincoln, Neb.: Out door, if possible to have close supervision as in country schools; if otherwise these are dangerous to morals and not needed, as children have nothing to do but play before and after school.

Supt. J. H. Millspaugh, A.B., M.D., of Salt Lake City, Utah: Open-air recesses. Freedom and spontaneity are essential to perfect relaxation, yet rightly directed calisthenics will serve a purpose not met by recesses.

Pres. Geo. L. Osborne, LL.D., of Warrensburg, Mo.: Open air with spontaneous play properly directed. Greater freedom, better health conditions, better results. Calisthenics may be introduced for variety

and systematic exercise with a view to regularity of movement and discipline.

Prof. John H. Philips, A.M., of Birmingham, Ala.: Both essential; first must be had, second should be; first, health; second, physical grace and strength.

Prof. W. B. Powell, A.M., of Washington, D. C.: The latter, because the exercise can be directed to known wants. The child has free undirected exercise enough without this.

Miss Estelle Reel, State Superintendent of Public Instruction, Cheyenne, Wyo.: Open-air recesses, because more helpful.

Prof. Wm. H. Smiley, A.B., of Denver: Open-air recesses with spontaneous play. The child, instinctively, unless abnormal, will harmonize his bodily organism with his environments better than any one can do it for him.

Pres. D. E. Sanders of Fort Scott, Kan.: Open air. Greater freedom, purer air, more interest.

Pres. Z. X. Snyder, Ph.D., of Greeley, Colo.: Open air by all means.

James Russell Parsons, Jr., and Dr. Roland Keyser of Albany, for Board of Regents, New York: Recess with play, because it affords complete and natural recreation.

Albert E. Winship of Boston: I doubt the utility or necessity of a recess. Indoor recreations, singing, calisthenics, etc., would seem all sufficient.

Pres. Irwin Shepard, A.M., Ph.D., of Winona, Minn.: Open-air recesses once each session and calisthenics between recitations.

S. Henry Dessau of New York City: Open air by all means. It restores oxygen to blood and gives vent to pent up energy.

Prof. Chas. Dennison, A.M., M.D., of Denver: Open air always in pleasant weather.

Joseph Eastman, M.D., LL.D., of Indianapolis: By all means open-air recesses with spontaneous play. Exercises by rule keep the mind on a strain. Chest expansion is better facilitated by outdoor exercise and chest expansion determines the capacity of any individual for physical or mental exertion.

Prof. F. Forchheimer, M.D. of Cincinnati: The former. We know that the air in schoolrooms is not the best, therefore as much fresh air as possible.

Prof. I. B. Perkins, M.D., of Denver: Always outdoor. Indoor exercises are of little value; fresh air is what they need.

Prof. Henry Sewall, M.D., Ph.D., of Denver: A combination of both. Calisthenics should be practiced in the open air when possible and are then preferable if one mode of recess must be chosen.

P. A. Walling, M.D., of Park Rapids, Minn.: Open air and plenty of it. Reasons: This gives greater freedom and allows the minds to come in touch; also it brings out the slow ones, does away with the idea of a recitation as the set exercises are apt to be viewed.

Prof. James T. Whittaker, M.D., LL.D., of Cincinnati: Open air and spontaneous play because of better ventilation and because there is no tonic like pleasure; a task is no pleasure.

Wm. Jay Youmans, M.D., of New York: Freedom in the open air because it is natural and superior to any artificial arrangements that can be devised.

Prof. Augustus P. Clarke, A.M., M.D., of Cambridge, Mass.: My experience leads me to doubt very much the pretended benefits of calisthenics and gymnastic exercises, which serve to make the pupil be more like a machine than a living being. Outdoor exercises; they favor spontaneous activities.

Harriet E. Garrison, M.D., of Dixon, Ill.—Open air. The machine system of our schools is crushing out spontaneity from children.

Hon. John J. Lentz of Columbus, Ohio: Open air for reasons that must be obvious.

Pres. Alfred Holbrook of Lebanon, Ohio: I would prefer both alternately enjoyed. Indoor exercises when weather is inclement.

Elizabeth K. Matthews of Des Moines, Iowa: By all means the outdoor. The child gets the benefit desired, perfect freedom without restraint, hence normal development.

Prof. J. A. Larrabee, M.D., of Louisville, Ky.: Primary grades, five minutes recreation in schoolroom after each recitation. For all grades, fifteen minutes recess in the middle of the forenoon and afternoon sessions. Morning session to begin at 8 A.M. and close at 12 M.; afternoon session to begin at 2 and close at 4 P.M., thus enabling all children to go home for dinner. The recesses, except the recreation above mentioned, should always be outdoors, untrammeled and unrestrained. The windows of the rooms should be thrown open in pleasant weather. Calisthenics and all rhythmic exercise, whether by system or music, tend to continue thought and brain exertion and is not therefore complete relaxation.

(To be continued.)

ABNORMAL RESPIRATION IN INFANTS FROM OBSTRUCTION IN THE UPPER AIR PASSAGE.

Presented to the Section on Diseases of Children at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY JAMES J. CONCANON, M.D.

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Normal infantile respiration in sleep is quiet, noiseless, save for the soft low inspiratory murmur, always nasal, chiefly diaphragmatic. During the first month its rhythm is irregular, there are frequent pauses and at times it is deeper, as in the Cheyne-Stokes variety. Its rate varies from 30 to 45. At the end of the third year it is regular and has a rate of 24. The rhythm is changed by very slight impressions. The movements seen are the ample ones of the abdomen, the lesser ones of the thorax and those of the nasal alæ. There is no drawing in of the fleshy portions of the thorax, the mouth is closed and the act of nursing can be completed without interruption.

Widely differing in its symptoms from that due to pulmonary or bronchial affections, abnormal respiration from obstructions in the upper air tracts is more difficult to trace to its cause, but is more amenable to treatment. Many fatal cases have shown that errors of diagnosis are common. Only recently has it become generally known that nearly all cases of croup are true diphtheria. Deaths from foreign bodies in the larynx or trachea, or from growths therein, could have been prevented had these not been mistaken for croup.

There exists hardly any other affection so dangerous and distressing to the patient, alarming to his family, or trying to the physician as obstructive dyspnea; nor is there any in which treatment is more effective. In

no other condition is the skill of the surgeon or the ability of the physician so evident. Antitoxin is the greatest medical triumph of the nineteenth century, and intubation and the recognition and removal of obstructive growths are amongst the most brilliant of surgical achievements. Occuring with great frequency in early childhood, respiratory obstruction may be regarded as one of the most important of pediatric subjects. The condition may last for moments or for years; life may be ended by it in a few moments or made unenjoyable for months or throughout its whole duration.

The symptoms, effects and treatment vary according to the nature and degree of the obstruction, and with its situation, which may be in the nasopharyngeal, the pharyngeal, or the laryngotracheal portion of the air tract. The first of these divisions extends from the anterior nares to and including the retronasal space; the second, from the level of the palate to that of the larynx; the third, from the mouth of the larynx to the lower end of the trachea. Briefly, impediments in the nasopharyngeal portion cause mouth-breathing; in the pharyngeal, snoring, and in the laryngeal stridulous respiration.

Of the three, that last mentioned is by far the most important.

LARYNGEAL OBSTRUCTION.

Laryngeal obstruction figures largely in infantile mortality. Phonation being one of the principal functions of the larynx, an altered or lost voice will be one of the earliest symptoms of obstruction.

The larynx being also the gateway of the respiratory regions, its partial closure interfering with the influx of air soon causes dyspnea with laboring inspiratory movements and noisy breathing.

Causes and symptoms.—The causes of laryngeal dyspnea in infants are numerous. Dividing them into six groups, it will be convenient to study, first, their nature and symptoms, and afterward their diagnosis and treatment.

Malformations of the larynx may cause congenital aphonia, hoarseness or dyspnea. There have been found membranous webs joining the vocal chords, and elongations of the arytenoid cartilages, preventing proper closure of the glottis and giving rise to whispering voice. The epiglottis in infants is folded longitudinally, approximating the aryteno-epiglottic folds. In some cases this causes so much narrowing of the entrance to the larynx, as to give rise to what has been called chronic infantile stridor, which is accompanied by crowing inspiration that at times becomes shriller as the dyspnea increases and again subsides to the low-pitched stridor which is always present even in sleep. One case of this affection has been under the author's observation since birth. Although there is a great improvement, noisy inspiration with occasional attacks of dyspnea exist still, the child being 3 years old. Even slight congestion may be very dangerous in these cases.

Laryngeal growths are nearly always papillomatous in infancy, fibroma being rare and myxoma and cysts rarer still. The last named are sometimes found on the epiglottis. Growths give rise to dys- or aphonia, cough and dyspnea. The number and intensity of the symptoms depend upon the size, situation and character of the tumor. Granulations from tracheotomy wounds may be a cause of obstruction. With pedunculated subglottic growths the symptoms may be intermittent. Systemic effects, anemia and failure of development from imperfect respiration are present in proportion to the duration of the obstruction.

Foreign bodies according to their nature, size and location, give symptoms varying from the mere sense of their presence to the most distressing dyspnea or instant death. In infants they nearly always cause dangerous stenosis, although in out-of-the-way places they may be present for a long time without giving rise to any pronounced symptoms, but may at any time cause fatal obstruction from edema or displacement. Pointed bodies, pins and fish-bones, and prickly ones, as sand-burs, usually fasten themselves in the larynx. Fish-bones may be fastened across the glottis without serious symptoms unless edema occurs. Pieces of meat or other food, vomited or swallowed, entering the larynx are perhaps the most dangerous and frequent of foreign bodies ordinarily met with in infants. Smooth, roundish bodies, such as small glass beads, buttons and fruit stones may pass into the trachea. Bronchial glands have also been found therein. If these do not pass into the bronchi they may remain loose in the trachea, a source of great danger from being subsequently wedged into the glottis.

Inflammations of the larynx, idiopathic or caused by the exanthemata, malaria, aphthæ, erysipelas, pertussis, typhoid, influenza, syphilis, tuberculosis, urticaria, erythemanodosum, pemphigus, traumatism, cold, inhalation of steam or of caustics and foreign bodies cause edematous, membranous, spasmodic or cicatricial stenosis.

Cicatrices are the result of congenital syphilis, sometimes of inhaled steam or caustics. Stenosing infiltration is extensive in syphilis, burns and tuberculosis. Spasmodic stenosis may result from congestion or inflammation, the local condition acting as an irritant to excite closure of the glottis.

Membranous exudates occur not only in diphtheria but also with scarlet fever, influenza and aphthæ.

Stenosis depending upon causes that act through the laryngeal nerves are frequent in infancy, at which period the controlling centers are undeveloped and motor response to all irritations is very active. Apart from the spasm occurring with congestion or inflammation of the larynx, reflex spasm may be due to dentition with its slight cough, pertussis with its inspiratory dyspnea, or to tetany or rickets, which are not seldom fatal. Other reflex causes are mediastinal tubercular glands, retro-esophageal abscesses, or hypertrophied thymus gland pressing upon the recurrent laryngeal nerve. Others yet are foreign bodies in the ear, nose or tonsils. Adenoid growth of the nasopharynx and elongated uvula are not infrequent causes. In some cases of rickets these spasmodic attacks of dyspnea are easily excited. One case happened in the author's practice where tetany and laryngismus stridulus coexisted. An attack fatal in half a minute, was caused by feeling the pulse. In chorea the inspiration has a peculiar wavy character which may be due in part to the intermittent contractions of the laryngeal muscles. Paralysis of the larynx often follows diphtheria and may be a cause of severe continuous dyspnea. Unilateral abductor paralysis gives dyspnea upon exertion only. It may result from compression of the recurrent laryngeal nerve. Suffocation from particles of food is likely to happen.

The pressure upon the larynx or trachea of retro-esophageal abscesses, enlarged cervical glands, hyper-

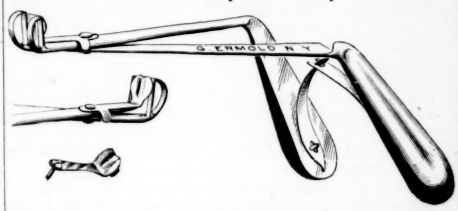
the alæ of the generally flattened and running nose. This has been called the veiled face of adenoids. Deafness, otitis, mutism, anemia and eye affections are often present. The voice has a dead, nasal character, that of cold in the head. Snoring, restlessness, night terrors, inability to nurse are always present in cases of large growths. Postnasal, laryngeal, bronchial, aural and conjunctival catarrh are frequent accompaniments. Not only is nasal obstruction often the reflex of very distant irritants, but it may be the cause of apparently widely separated affections, such an enuresis. Fits of crying and continued frowning indicate headache. The mouth-breathing infant is generally anemic, puny, ill-developed and frequently affected by diathetic diseases. The rachitic are frequently mouth breathers; while predisposing to other diseases, the presence of nasal obstruction causes infants ill from any cause to do badly. An interesting case was recently reported in the *New York Medical Journal* of a child which having complete nasal obstruction from birth, with inability to nurse, died when one week old. At the autopsy the turbinated bodies were found congested to such an extent as to cause complete occlusion. Surgical treatment had not been attempted.

Diagnosis.—The first diagnostic procedure should be an examination of the nasopharynx; for adenoid growth will be found in four-fifths of the infants with chronic nasal obstruction. In a few seconds the physician's index or little finger slipped behind the palate, over the vomer and down the posterior pharyngeal surface, will not only have met the soft, pendant, easily bleeding masses, blocking the posterior nares, but will be found blood stained when withdrawn. In infants under six months, such examination being impossible, an applicator armed with a cotton nob introduced behind the palate or through the nose, touching the masses ever so gently, causes them to bleed, showing their presence. Anterior rhinoscopy requires some practice before a reliable diagnosis can be made of the obstructions in the nasal chambers. A novice in rhinology is most likely to fail in even so simple a matter as distinguishing a red fleshy hypertrophy of the inferior turbinated body from the gray oyster-like polyp of the middle turbinated. Nor can he easily determine whether it be a growth or a deflection that affects the septum.

Intranasal obstructions are, however, comparatively rare in infants. Abscesses of the septum have been found five times in the author's practice. It is easily recognized by the bilateral bulging of the septum. The probe detects bony or cartilaginous growths that completely or partly occlude. Collapse of alæ should always be thought of before a speculum is introduced. Unilateral occlusion with purulent discharge often means the presence of a foreign body, such as a shoe button or grain of corn. In diphtheria the anterior nares are usually excoriated and covered with a gray pellicle. The Loeffler bacillus is always present. The membranes may be confined to the posterior part of the nose and retronasal space.

Treatment.—Apart from the finding and removal of the reflex and other causes, when general treatment fails, hypertrophy of the turbinated bodies are reduced by the galvanocautery or snare; exostosis and ecchondroses are drilled through with the electric trephine. Bone cysts and polyps are snared away, abscesses opened and foreign bodies removed by means of forceps or hooks. Syphilitic lesions require mercurial inunctions and thorough cleansing. Nasal diphtheria demands prompt injection with antitoxin, in large doses and repeated until the membranes cease to recur. This form of the disease indicates not only its virulence, but that the patient is non-resistant. When collapse of the alæ exists it is treated by means of springs or frames that maintain the form and size of the nostril.

Practically, however, the treatment of nasal obstruction in infants means removal of retronasal adenoid growths. The operation requires but a few seconds of time and no anesthetic. Cutting forceps and Gottstein curettes are employed. For growths on the posterior wall of the retronasal space the latter is the best. The forceps better reach the high growths which hang into the posterior nares and cause most of the obstruction. To prevent the injuries to the vomer, uvula and Eustachian tubes, which often occur with inexpert operators, and to guide the instrument into proper position for effective work, the author has devised a plate of peculiar shape which fits over the open jaws of the forceps and, when introduced, over the posterior edge of the vomer, also enables the operator to bring all the growths within the blades. This instrument accomplishes the operation at one application. Only when there are extensive posterior growths a single sweep of the curette may supplement the forceps. The latter instrument has the advantage that the growths are always brought away with it, while with the curette they are usually swallowed.



Hemorrhage nearly always ceases in a few moments. Three fatal cases have been reported. To check it, pledgets of cotton, saturated with solution of acetate of aluminum, should be drawn up into the nasopharynx by means of cords passed through the nose, and tied over the columna. Salt water irrigation, thrice daily for two or three days, is the only after treatment. Over two hundred cases have been treated in this way in dispensary practice with no evil effects whatever. The operation is invariably successful.

Rachitis, rhinitis, chorea, reflex cough, eye troubles, deafness, malnutrition, laryngismus, laryngitis, enuresis, night terrors and aprosexia will often resist the most careful treatment until the accompanying adenoids are removed, when convalescence will be rapidly established.

Having thus briefly dealt with the important subject of dyspnea in children under three years of age, it may be permissible to emphasize: The importance of laryngology in pediatrics; the facility with which the larynx may be examined even in infants; the necessity for ascertaining the condition of the upper air passages in all children, and for the removal of obstructive adenoid growths; the many causes of nasal and laryngeal dyspnea in infants, amongst which drawing in of the nasal alæ, sprue, inhaled irritants and foreign bodies are often overlooked; the frequency of retropharyngal abscesses, necessitating digital explor-

ation of the pharynx; that the bacillus of Loeffler is often the cause of laryngeal stenosis in acute diseases, and demands prompt use of antitoxin; that these helpless little beings, who can not, often will not, give a history, should receive the benefit of all modern methods in diagnosis that they may enjoy normal respiration.

PUERPERAL INFECTION.

Presented to the Section on Obstetrics and Diseases of Women, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY J. E. COWLES, M.D.

LOS ANGELES, CAL.

As this does not pretend to be an exhaustive treatise on puerperal fever, so-called, I will make no apology for slighting certain parts of the subject; and if I seem to wander too near the boundary line of the undiscovered, it will not be for the sake of the theorizing, but with the desire to draw, from reasonable inferences, certain conclusions that may assist in our every-day work. In regard to a choice of name for the puerperal condition now under consideration, there is not entire unanimity among medical men. Garrigues objects to the term puerperal fever, principally on the ground of its expressing only a symptom and in exceptional cases not even that, as he states there is sometimes no fever at all. Metria, he thinks too vague, and septicemia too strong a term for mild cases; therefore, he prefers the term "puerperal infection" and while admitting that it refers more particularly to etiology, he thinks it may also stand for the pathologic process, just as "cold" is used by the laity and profession also for both conditions. He claims for it the great advantage of pointing out that the disease comes from without, thus impressing on us the necessity of taking measures to prevent it. Puerperal infection, then, being the most available term in the present state of our knowledge, may be used as a general term, and the words septicemia, pyemia, etc., may stand for peculiar and grave states of this infected condition. The time-honored name, puerperal fever, may be retained also for association's sake, even if we can not find any rational basis on which to rest its claims, looked at from the standpoint of a purely scientific classification. As to the identity of the causes of surgical and puerperal infections, about which there has been so much discussion in times past, I believe the consensus of medical opinion of today is on the affirmative side of the question. In view of the accumulated experience of the most enlightened physicians of the last two decades, aided by the revelations of the microscope and the results of bacteriologic research, all tending to establish beyond the peradventure of a doubt, the identity so far as cause is concerned, of the two conditions, it should be hard indeed to find an advocate of the dual theory. The idea of identity, as I understand it, is not that the two conditions are dependent on a particular kind of germ, the poison *sui generis* of Barker, but that they are both dependent on the presence of germs, be they all of one kind (if it were possible), or of many kinds, and that there may be as much similarity, or, if you please, identity, between a given case of puerperal infection and surgical infection as there would be between two cases of surgical infection all the time allowing for the greatly differing conditions of the two cases. For, as Lusk expresses it: "In the puerperal state it is necessary to take into account the blood changes induced by pregnancy, the effects of shock and exhaustion in protracted labor, the frequency of hemorrhage, the deep situation of puerperal wounds, the presence of clots, decidua and dead tissues in a state of disintegration or decomposition, the ease with which deleterious substances are absorbed by the wide lymphatic interspaces, the serous infiltration of the pelvic tissues, the exaggerated size of the lymphatics and veins, and the proximity of the peritoneal cavity;" and, therefore, he concludes "that the differences between surgical and puerperal septicemia are due to differences partly structural and partly physiologic in the wounded surfaces exposed to septic contamination, but that the two conditions are not only analogous but essentially one and the same process."

That the puerpera is much more liable to infection than any surgical case will hardly be denied, for "it is a fact independent of all theories."

Blood clots and decidual shreds most certainly furnish good material for infection, but from experiments made by Prudden, a detailed account of which was given in the New York *Medical Record* of Jan. 25, 1890, he conclusively shows that, whereas, all the other body fluids have more or less germicidal effect, amniotic fluid, on the contrary, proved to be such a good culture-medium that typhoid bacilli planted therein almost quadrupled their number in six hours after implantation.

Etiology.—The query as to what is puerperal fever is answered by a practical obstetrician as follows: "It is a disease due to a poison coming from without, the cause of which seems to be produced by certain microbes. That the severe cases are due to septic organisms is proved by the fact, that by antiseptic measures we succeed in preventing the disease and if it has made its appearance they have great power in conquering it. Another proof is, that microbes have been found in such numbers and under such conditions that they must be regarded as intimately connected with the disease—but this properly belongs to the bacteriologist."

That scientist adds: "Emphatically, yes. Bacteria *are* connected with this disease as causal factors." When asked for his reasons for such a statement he reminds us that, following Tyndall, a number of investigators have proven beyond a doubt "that bacteria do not arise by spontaneous generation anywhere," thus establishing the law *omnis cellula e cellula*, the only law, so far as I know, without an exception. "This being true, as well as the fact that bacteria have never been found in the body in a state of health their presence there in disease must be ascribed to an entrance from without and the finding of suitable conditions for their development after this entrance has been effected. Therefore we can confidently affirm that bacteria or their products are the exciting causes of such affections as the pyemias and septicemias."

Pasteur and Doleris give as results of their work, four varieties of bacteria occurring in cases of puerperal infection, which they classify as follows: 1. Cylindric bacteria or bacilli, developing into large filaments about the time of the death of the patient and called *bacteries septigues*. and commonly found in malignant septicemia. 2. Micrococci in chains, called streptococci. 3. Diplococci, especially occurring in pyemia, as the micrococci pyogenes. 4. Micrococci occurring singly or in irregular masses. From the nature of the subject and the difficulties

surrounding it, it is impossible at this stage of investigation, to associate any one or several of the different species of micro-organisms, as causing a definite array of symptoms in any given case of septic trouble, except to say in a general way that the most serious infections are due to the bacilli and streptococci. "If we have chills and a rise of temperature to 40 degrees C., we may assume, almost with certainty, the presence of the streptococcus." So far, the following bacteria have been found in causative relation to, or thought capable of causing puerperal fevers, viz:—The streptococcus pyogenes of Passet; the streptococcus erysipelatis of Fehleisen; the streptococcus septicus of Nicolairer; the staphylococcus pyogenes aureus of Rosenbach; the staphylococcus pyogenes albus; the staphylococcus pyogenes citreus of Passet; the staphylococcus pyogenes circus albus of Passet; the bacillus coli communis of Escherich; the bacillus saprogenes of Rosenbach; the bacilli of rabbits and mice septicemia; the bacillus pyogenes fetidus of Passet; Noeggerath's saprocyte and others.

As to the modes of entrance of these poisons into the system, unquestionably the vast majority of cases are infected through a solution of continuity, at some point or points within the genital tract, but there are a few cases on record that can only be reasonably explained upon the supposition that the germs gained admission through the respiratory or digestive tracts; but the percentage of these cases is so small as hardly to merit consideration.

Pathology.—As infection may cause a septic vulvitis, vaginitis, endometritis, salpingitis, ovaritis, peritonitis, lymphangitis, phlebitis, pleuritis, pneumonitis, etc., so will be added the special pathology of one or more of these inflammations, as they exist, plus the peculiar pathology of the particular bacteria present, such as pus, diphtheritic membranes, etc. It is thought that, where the round bacteria exist in great quantities, you are apt to find emboli and infarctions, ending in metastatic abscesses characteristic of pyemia and so frequently found in the liver, kidneys, spleen, parotid gland and other glands; or, if the more virulent bacilli predominate, we are told that the only pathologic change, sometimes observed, is a very coagulable blood and at other times an excessively fluid state of the blood, each condition supposedly due to the chemic action of the animal alkaloids produced by the germs.

Mortality and prognosis.—We are all familiar with Max Boehr's statistics and the report of the Berlin Society, and since we gather from them that before the period of antiseptic midwifery 10 to 15 per cent. of all deaths occurring in women, during the period of sexual activity, was due to childbed fever" and that at a later period with imperfect antisepsis this appalling mortality was reduced to 4 per cent. at the New York Maternity Hospital and later to a quarter of 1 per cent. with a more perfect system, we can praise the Lord that he put it into the minds of men to study this much neglected subject.

In addition to this great saving of life antiseptic midwifery, as Garrigues tells us, has reduced morbidity from 25 to 3 or 4 per cent. The prognosis of puerperal infection depends upon the *character* and amount of poison absorbed in the particular case under consideration, together with the character of the tissues or organs involved. As a material help to prognosis and treatment, a microscopic examination of some of the cervical discharge should be made by an expert microscopist.

The symptoms of puerperal infection may be as varied as its pathology. They may vary from a slight headache, anorexia and mild fever for a few days, the so-called milk fever, to a case with severe and prolonged chill or recurring chills, rapid pulse, high temperature, sweet breath, dusky or jaundiced skin and anxious face of acute septicemia, soon terminating in collapse and death. The local inflammation, as a peritonitis, may impress its symptoms in a given case. Again, we may have an array of symptoms characteristic of pyemia, with such sudden rises of temperature followed by profuse sweating and marked remissions of temperature, as often to be confounded with malaria. If it is true that micro-organisms have the power of producing animal alkaloids, with properties as varied and with effects as marked as are characteristics of those vegetable alkaloids with which we are familiar, such as atropia, aconitia, etc., then it should not appear strange, if we should note symptoms in certain cases similar to those produced by large or toxic doses of these powerful medicines. Bearing this possibility in mind, we should be on the alert for symptoms caused by these little understood but none the less real and potent substances. In case of a sudden collapse and death (and who of us have not heard of such during supposed puerperal convalescence, with a death certificate given of "heart failure") due, perhaps, to the leucomain analogous to aconitia, secreted within the individual herself where we were giving aconite in large doses, to know of the possible presence of this leucomain, might save us from unmerited reproach and qualms of conscience.

Prophylaxis.—By far the most important consideration during the lying-in period is to obtain as conscientiously perfect asepsis as is possible and no amount of trouble either to the accoucheur or attendants should be declined to secure this *sine qua non* to the puerpera. "For here if anywhere, a man is weighted with responsibilities of a momentous nature, even such as he is called upon to sustain in no other social, professional or individual capacity." I maintain that considerations of delicacy or false modesty as in the past, should not be allowed such paramount importance, as to prevent such a careful aseptic toilet of vagina, vulva and contiguous parts as an up-to-date surgeon would order given as a preliminary to a vaginal hysterectomy.

If the obstetrician is not sure that the nurse knows how to scrub out and disinfect a vagina thoroughly, he should do it himself, after all hair has been removed from around the vulva, and order antiseptic pads changed *pro re nata* or frequently, both before and after the completion of labor.

A word of explanation as to the necessity and importance of this cleansing should be impressed on the puerpera herself, and a caution as to keeping her hands away from the cleansed parts should not be overlooked, as every observant accoucheur can testify. The writer rigidly adheres to Garrigues' rules "for and in such cases provided" and he thinks he has cause for gratulation and gratitude, as in from 1,200 to 1,500 cases attended by him, he has had no death from puerperal fever and but few cases of morbidity. In 1880, writing on this subject, I used the following language: "While I do not use the intra-uterine douche as a routine measure, I know of no good reason why it should not be done, and if, as seems certain, liquor amnii is such a good culture-fluid for bacteria, it would seem but in the line of common prudence to

wash it away and by the same process and at the same time, get rid of placental shreds and blood clots, generally recognized as sources of danger. Besides, the hot uterine douche assures good uterine contraction, and I believe it is but a question of time, until this excellent prophylactic measure will be advocated ex cathedra, as correct practice after every delivery, at least where there is no trouble about having satisfactory antiseptic arrangements. Until then, I shall consider the surgeons a step in advance of the obstetricians."

I notice that Alexander Duke, of Cheltenham, England, writing to the *Medical Press and Circular* of London, in September 1895, states that he thinks "that an antiseptic treatment in midwifery would be seldom required, if the aseptic were more attended to, one of the most important plans being thorough flushing of the *entire genital tract* directly after labor. Those who have not taken the trouble on themselves to thoroughly wash out the uterine cavity directly after labor, the time when it can be best and easiest accomplished, can have little idea of the amount of débris which, if left behind, must take a considerable time to be expelled and is certainly likely, to say the least, to prove a source of danger to the lying-in patient."

A prophylactic caution that should be observed in every case, is to examine rarely and not to introduce the finger within the os in ordinary cases. When it is absolutely necessary, follow it with an antiseptic douche, also express placenta by Credé's method. Squibb's fluid extract of ergot in half teaspoonful doses, or one-thirtieth grain of strychnia, three times a day for five or six days, as well as immediate suturing of any laceration worthy the name, is important prophylactic treatment.

I shall make no apology for thus having dwelt at length on the most important part of this very important subject. I must say in passing, that I have had great comfort in postpartum douching of the uterus, in using a thick-walled, properly curved, glass tube, nine or ten inches long and as large as the thumb, which I think could be improved by deeply fenestrating the outer curve at its distal end for four or five inches.

Treatment.—If proper attention has been paid to prophylaxis, there will seldom arise a necessity for other treatment, but I believe that once in a great while one will run across a case of autogenetic infection from a ruptured pus tube or abscess sac, ovarian dermoid or other abnormality within the pelvis. In such cases evidently celiotomy with careful toilet of the peritoneum and drainage would be the remedy. In case the genital tract has been infected, I am an earnest advocate of early and very careful curettage and swabbing the uterine cavity with iodized phenol, without irrigation, but insufflating boric acid and packing lightly with iodoform or acetanilid gauze; or, what I sometimes like better, sew into the cervix a perforated one-fourth of an inch glass tube and fill the vagina with iodoform gauze. If, in spite of this treatment, faithfully tried, general infection ensues, it would certainly be proper to inject hypodermically the antitoxin serum appropriate for the preponderating germ present.

The most modern treatment of general septicemia is that of hypodermic injections of creosote recommended by Frank of Cologne. Its administration is said to be attended with remarkable results, rapidly reducing the temperature from 104 degrees F. to normal.

The solution that I have used in 20 minim doses, three or four times in the twenty-four hours, consists of equal parts of pure beech-wood creosote and sterilized camphorated oil. It is a beautiful, light amber colored liquid with only a slight smell of creosote and its injection does not seem to be attended with any disturbance or reaction. Failing in this special treatment, coupled with strongly supportive and stimulating general remedies, if the uterus and adnexa are thought to be a hotbed of infection, one would be derelict in his duty, if he did not give the patient her last chance by removing them; and I would most earnestly urge the vaginal method where possible, as causing less shock and securing better drainage.

314 Wilcox Building.

ANTI-STREPTOCOCCUS SERUM.

BY C. P. THOMAS, M.D.
SPOKANE, WASH.

During the last four months we have used this new remedy eight times, and notwithstanding that the cases treated were of very severe nature, the results have been so universally good that I feel it a duty I owe to the profession to report them.

I will be unable to give a correct clinical report of the cases, for no notes were kept, but they are sufficiently recent I hope to make them plain to you from the mental picture which I still have.

Mrs. A. was being treated by Dr. Button for acute cellulitis of the arm following an infection of a slight wound on the finger. She came to him after having been treated indifferently for two weeks, with a much swollen arm considerably distended with pus. Her temperature at this time was not very high. Under strict asepsis, free incisions were made into the arm, much pus evacuated, and the arm enveloped in a moist bichlorid dressing. Three days later, a violent erysipelatous condition came on, the temperature rose to 104 degrees, the patient suffering great pain; she was almost pulseless and death seemed imminent. She was given 10 c.c. of Marmorek's anti-streptococcus serum and also the usual stimulating treatment; and on his return twelve hours later, the Doctor found the temperature to be 100 degrees, and she continued to improve until complete recovery took place.

Mr. B., who was under the care of Dr. Byrne, came into the hospital the second or third day of the disease with acute erysipelas involving one entire leg; place of inoculation, a small varicose ulcer. The entire leg was swollen and from the knee down the limb was almost black with edema. His temperature was 106 degrees and he was unconscious. He was given 10 c.c. of the serum in the evening, and next morning his temperature was nearly normal, tongue moist, the swelling subsiding, and he went on to a rapid recovery.

The third case was also under the care of Dr. Button, and was one of acute suppurating appendicitis, in which we flooded the general peritoneal cavity with pus during the operation by the breaking of a very thin wall of protective membrane. Twelve hours later the patient showed great restlessness and other symptoms, well known to abdominal operators, of beginning peritonitis. He was given the usual dose of the serum and all these unpleasant symptoms disappeared and he made a rapid recovery.

The fourth case was a boy of 14 years of age, with acute obstruction of the bowels, who had recently

been operated on for an abscess of some sort in the region of the vermiform appendix. He came under my care forty-eight hours after the attack began, with a high temperature, greatly distended abdomen and every indication of acute peritonitis. The abdomen was opened in a line with the old scar, which was parallel with Poupart's ligament and about an inch above it, adhesions broken up throughout the intestines, mesentery and omentum, the appendix removed, an operation done for the cure of the incisional hernia, which was very marked and the wound closed without drainage. All parts of the abdominal viscera showed marked evidence of acute inflammation. He was given the serum injection at once and recovered.

The fifth was a case of erysipelas beginning in an axillary abscess which involved the skin and muscles of one entire side of the chest. He was also greatly prostrated and suffering from a very high temperature; one injection of the serum was given him, with the same results as the others.

The sixth was a case of ruptured pus-tube of probable specific origin, which also had the usual high temperature, tympanites and great prostration. She was operated on through the vagina, the leaking tube removed and the general cavity thoroughly drained with rubber tubes and gauze. She was given at the time of the operation, the usual dose of serum, and although she was greatly improved, the next day it was repeated and her recovery has also been uneventful.

The seventh was a case of a large leaking pelvic abscess. The patient was in worse condition than any of the others, the bowels greatly distended, and very tender on pressure; she was vomiting persistently and there had been no passage for three days. Up to this time, she had been under the care of a colleague and given the opium and saline treatment. She was given the serum and immediately opened through the posterior fornix and about a pint of foul smelling pus evacuated from the abscess cavity. Both it and the general peritoneal cavity were thoroughly irrigated and drained. At the end of twelve hours her bowels moved with but little effort, the vomiting gradually subsided, and she is now almost recovered.

The eighth was a case of acute sepsis coming on about nine days after a very difficult labor, in which she was severely lacerated. She was irrigated and curetted two or three times before being sent in from the country, but her temperature remained high and there was some distention of the abdomen. She was given the serum treatment after the temperature had remained up for four days, all intra-uterine treatment stopped and, within twelve hours, the temperature became almost normal and remained so for ten days, when she was again suddenly taken with a chill and very high temperature, which resisted all constitutional treatment for three days, when she was again given 10 c.c. of the serum. The next day it was found that her temperature was not so high and there was some bogginess in the posterior fornix. The serum was repeated, the fornix opened and drained of a small accumulation of serum, and the uterus again thoroughly curetted, considerable placental tissue being removed. The following day she still had a very high temperature, showed evidence of the most profound toxemia and the serum was again given, and from this time on she continued to improve, the temperature remaining normal after the eighth day. This case would doubtless have been subjected to a hysterectomy by some of our advanced surgeons, but I consider her in a much better condition than if she had lost her uterus.

While it is true that some of the above reported cases might have recovered without the serum, considering the fact that so eminent an operator as Dr. Nicholas Senn has just admitted that out of over fifty operations for general peritonitis which he has done, not one has recovered, it appears to me that much credit must be given the serum in these cases. This represents my entire experience with the serum and I have used only that which was prepared by the Pasteur Institute and obtained from their branch house in Chicago, the Pasteur Vaccine Co. It comes in single bottles of 10 c.c. each, and is given with the antitoxin or ordinary hypodermic syringe.

URTICARIA, A THERAPEUTIC NOTE.

BY BERNARD WOLFF, M.D.
ATLANTA, GA.

The list of remedies suggested for the relief of urticaria is already so voluminous that I would have some hesitation in further adding to it, were I not thoroughly convinced of the value of phosphate of soda in the treatment of this common complaint.

I have used this drug for the past year in quite a large number of cases, and with such uniform success that I have come to regard it as absolute master of the disease, and have ceased to have any of my former misgivings of my ability to promptly relieve the patient.

In acute cases in adults my plan is to give dram doses of a supersaturated solution of phosphate of soda, *i. e.*, sixty to eighty grains to the dram, the salt being dissolved in its own water of crystallization. This is to be repeated every three hours, and in addition the following antipruritic lotion is recommended:

℞	Pulvis Calamin		
	Zinc. Oxid.	ăa ʒiss	6
	Acid. Carbolic	ʒ ss	2
	Aq. Calcis	ʒ ij	64
	Aq. Rosæ	ad ʒ iv	128

This is to be applied frequently and freely. The dose of the salt may be appropriately reduced in the case of children, and the quantity of carbolic acid in the lotion diminished. The effect is prompt, within a few hours the acute symptoms subside, and in from twelve to twenty-four hours the eruption ceases to appear.

In the chronic type of the disease the relief afforded is equally prompt, but recurrences are apt to follow. The remedy should be given in doses of one dram or more after meals, and should be persisted in until all tendency to recurrence of the attacks has disappeared. Patients do not acquire a tolerance for the drug and therefore, it may be administered in unchanging doses for as long as is necessary without any injurious effect.

The remedy is especially applicable in urticaria of gastro-intestinal origin, and is consequently applicable to fully 90 per cent. of all cases.

Sodium phosphate is regarded as one of the most reliable hepatic stimulants and intestinal antiseptics, and its curative influence over urticaria is probably based upon this physiologic action.

The Paris Hospitals.—It is stated by the correspondent of the *Medical Press and Circular* that the hospitals of Paris need the expenditure at least of one million pounds to make them habitable, and a further outlay of another million to make them what they really ought to be.

ACNE ROSACEA TREATED BY INTRADERMAL INJECTIONS OF FORMALDEHYDE.

BY J. T. McSHANE, M.D.
INDIANAPOLIS, IND.

The patient, an unmarried lady 30 years of age, has suffered from acne rosacea, with pustulation and papulation for about ten years. The entire face was involved with redness, most marked over cheeks and nose, and always worse during menstruation. The patient is well nourished but has suffered from nervousness and despondency, perhaps due largely to her necessary isolation from society on account of the bad appearance of her face. She has been under the professional care of several first-class physicians and all the usual means of treatment have been resorted to, but without avail.

I decided with the consent of my patient to use intradermal injections of formaldehyde in the strength of 1 drop of the 40 per cent. solution to 100 drops of water. These injections are attended with a stinging pain which the patient compares to the sting of a bee. One-half to one minim was injected in each point selected, care being taken to pass the needle into but not under the skin. In a few moments a spot about the size of a 10-cent piece, immediately surrounding the point, presents an elevated surface resembling urticaria. A sufficient number of injections were made at each treatment to thus affect the whole area of the disease and the treatments repeated at intervals of one week. The results have been most gratifying, and now, after three months' observation and treatment, the face is normally white with little or no tendency to recurrence of the disease.

26 East Ohio Street.

OVARIAN CYST.

Presented to the Section on Obstetrics and Diseases of Women at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY A. M. CARTLEDGE, M.D.
LOUISVILLE, KY.

I desire to report a rather unique case. The woman from whom this cyst was removed was 37 years of age and lived in a hovel a great distance in the country. I saw her May 13 and operated the same day. The tumor had been growing for thirteen years, and for the last four years very rapidly, so that she was unable to assume the reclining posture for more than a year and a half. The circumference at the umbilicus was seventy-nine inches. The woman was five feet four inches in height and well formed, except that she was very much emaciated from carrying this enormous cyst. Twenty-four gallons of ovarian fluid were removed before she was placed in position to be anesthetized. After that she was placed on her back and ten additional gallons of fluid withdrawn. The adhesions to the anterior parietal wall were terrific. Many ligatures were used and the operation consumed about two hours under unfavorable circumstances. The woman survived the operation fairly well, leaving the table with a pulse of 114. On the fifth day she had a normal temperature and a pulse of 108. Beginning with the sixth day symptoms of intestinal obstruction developed and she finally died. The fluid withdrawn weighed 240 pounds and the sac 5 pounds.

WRITE TO US for a copy of Department of Public Health Bill.

LENSES FOR THE STUDY OF THE SCISSOR MOVEMENT, CONIC CORNEA AND SPHERIC ABERRATION WITH THE RETINOSCOPE.

BY JAMES THORINGTON, M.D.
Adjunct Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine, etc.
PHILADELPHIA, PA.

As the scissor movement, conic cornea and spheric aberration, as recognized by the retinoscope, are so difficult of demonstration, except in the individual patient, the writer has had made three lenses which will illustrate these conditions respectively, when placed in front of his schematic eye; and thus the beginner in retinoscopy may have the opportunity to see, know and study these important and interesting manifestations, before proceeding direct and in comparative ignorance to his patient.

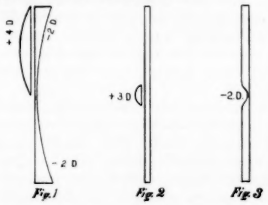


Fig. 1 Fig. 2 Fig. 3

Figure 1, is a plano-concave cylinder of 2 D., mounted in a cell of the trial case and to one half of its plane surface is cemented (at the same axis) a plano-convex cylinder of 4. D., thus making a combination lens, one-half of which is a —2 D., and the other half a +2 D. Placing this lens with its axis at 180 degrees, before the schematic eye at emmetropia (zero) and the observer at one meter distance

Thorington's Schematic Eye.

with his plane retinoscope, the two light areas, so characteristic of the scissor movement, with their straight edges and dark interspace may be seen approaching each other from above and below (and the dark interspace disappearing) as the mirror is tilted in the vertical meridian.

Figure 2 is a section of thin plane glass mounted

as in figure 1, and has cemented at its center a small plano-convex sphere of 3 D., whose base is about 4 mm. in diameter. Placing this lens in front of the schematic eye at emmetropia (zero) and reflecting the light from the plane mirror at one meter, there will will be seen in the pupillary area a small central illumination which moves against or opposite to the movement of the mirror, and a peripheral ring (at edge of the iris) which moves rapidly with the movement of the mirror; between these two light areas is a dark ring. This is the retinoscopic picture and movement of the light areas, so indicative of conic cornea. It is also an exaggerated picture of negative aberration.

Figure 3, is made similar to figure 2, except at its center is ground a —2 D. sphere of about 4 mm. in diameter.

Placing this lens in front of the schematic eye at emmetropia and the observer seated as before and with the plane mirror, he sees in the pupillary area a central illumination which moves *slower* than the peripheral area (at the edge of the iris) which moves rapidly, both areas moving *with* the movement of the mirror.

After the observer has carefully studied these pictures, it will be obvious that changes other than those mentioned, can be made with these lenses and he should proceed to note them, by: 1, changing the focus of the schematic eye; 2, by placing both the convex and concave spheres in combination; 3, by varying his distance from the eye; 4, by placing a concave cylinder in front of the double cylinder at an oblique axis, thus getting the picture of compound irregular astigmatism; 5, by placing a concave cylinder of 1 D., in front of the convex sphere and developing asigmatism with the conic cornea, which is the usual condition. It is also obvious that the scissor movement can be produced by a prism which is made to cover one-half of the pupillary area, but the resulting picture is not as satisfactory for demonstration as that given by the combination lens referred to in figure 1. The instrument is manufactured by Messrs. Wall & Ochs of Philadelphia.

120 South Eighteenth St.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

BY CARL H. VON KLEIN, A.M., M.D.

XVIII.—DISEASES OF THE THROAT, CHEST AND ABDOMEN.

(*Continued from page 1219.*)

Abscess of the liver required surgical treatment when it presented a fluctuating swelling on the outside. It could make its way through the diaphragm and appear outside on the thorax (Petit, Morand) or break through into the lung (Fourcroy), the intestine (Bajon) and stomach, and then heal. Generally it appeared on the lower short ribs, but seldom between the abdominal muscles and the iliac bone, in the right hand groin region, above on the inner side of the thigh (Bajon), where the diagnosis was very difficult. Also a well filled gall bladder was delusive and could be mistaken for an abscess in the liver. This was often and successfully opened; the sooner it was done the more certain was the cure, for there was no dependence on a spontaneous breaking of the same on the outside. Later the pus could separate the adhesions between the liver and the peritoneum and flow into the abdominal cavity. The abscess was opened with a rather large lancet, not by cauterizing, which would be apt to make the aperture too large. Schwartze had to pierce two inches deep before he reached the pus. When this smelled foul, camomile tea and honey were cautiously injected. A fistula might remain or death ensue from consumption. *Opening the gall bladder* was taken into consideration in fistulas and great accumulations. To effect a cure of the fistula it was usually necessary to extract the gallstones which caused the same, but only if the patient suffered excruciating pain. By means of catgut or a chisel the opening was enlarged until it admitted the finger, on which the forceps was introduced for the extraction. In this wise Zacharias Vogel of Lübeck had performed "one of the very finest of operations." In swellings of the gall bladder, which attained such a size sometimes that they were mistaken for encysted dropsy, an attempt to force the bile into the duodenum by gentle rubbing was made upon the presence of inflammatory symptoms. If it failed, the bladder was opened with the trocar according to Petit's mode of procedure, a very harmless interference as, on account of the inflammation, adhesion was assured and the tube was allowed to remain for a few days. Without a simultaneous inflammation it was not permissible to open the gall bladder, for fear of the probable adhesion with the abdominal wall. In order to produce the inflammation the peritoneum was exposed, spread with caustic, and after a few days the bladder was pierced.

A partial *extirpation of the spleen* was achieved by Ferguson. For twenty-four hours the spleen protruded from a wound and a portion of it was gangrenous. Around this piece, weighing three and one-half ounces, a piece of twine was placed; then it was cut off and a large, violently bleeding artery was tied. The remaining portion of the spleen was replaced, the threads hanging out of the wound wore off after ten days and the patient was soon cured.

We will now speak of *hernias*, in the study of which a lively interest was manifested. Their history is especially glorified by the names of J. L. Petit, Arnaud, Garengeot, Morand, Pott, Guenz and Richter. The latter arranged the scattered material in his classical book in such a brilliant manner that his work was the authority on the above subject until A. Cooper's time. As early as the beginning of the century, attempts were made to scientifically explain the mechanism of the formation of ruptures, and to end the strife whether the nature of hernia was due to displacement of the peritoneum or to rupture of the same. The latter idea was the more prevalent one. German surgeons manifested but little interest in these researches. Heister did not know for which opinion to decide, compared the different views expressed, and produced authorities for the one and the other. Wideman (1719), a lithotomist and cataract curer in Augsburg, expressed himself more clearly and earlier than Heister, saying that "in reality no tear exists, only a distention, discharge and obstruction are found." The first scientific attempts were made by Reneaulme ("Essai d'un traité des hernies." Latin edition, 1721; French, 1762), who looked upon the rupture portals as fissures, from which the outer membrane of the peritoneum along the vessels, which protrude from the abdomen, continues as a divide; the

peritoneum is always well and unimpaired, if not maltreated in some peculiar way. His theory was more fully executed in detail by Garengeot (1732), whose writings enjoyed a great circulation. But he as well as Arnaud had experienced, that after a violent thrust or great exertions the peritoneum burst and thus a rupture ensued without a hernial bag. Soon there appeared in Germany, almost simultaneously, the works of Günz, Mauchard and Vogel. Günz reproduced Garengeot's theory, furnished exact anatomic descriptions of various sheaths for the different ruptures, described also those into the oval orifice. Mauchard tried experiments to ascertain the possibility of displacing the peritoneum. Vogel is credited with the important remark that strangulated hernia does not necessarily lie in the inguinal ring, but often in the hernial sac, even in the protruding viscera at times; I have not found the place in his book where it says so.

Regarding the treatment of reducible hernia, we have read, in the second chapter, of the outrageous malpractice carried on by the lithotomists with the radical cure. In the middle of the century Sharp and Günz favored the "king's suture," a method so-called because by sparing the generative organ its procreative power would be preserved and thus save subjects for the king. Vitriol was recommended by Renton for cauterizing, and in the year 1774 was again used by Maget and his friend Gauthier, who caused a great sensation with his ill-reputed writing. In it a thorough cure of all ruptures, no matter how large, was assured, taking for granted that they had not grown to any of the organs or the walls; but the details of the operation were concealed. The Académie de Chirurgie used its entire authority against the same; and above all others, A. Petit, who accused Gauthier of the famous de la Condamine's death; also Bordenave opposed him, although it appeared that both of these men were somewhat the victims of envy and jealousy. A third method of the radical cure consisted not only in compressing the neck of the hernial sac but to produce a counter-irritation to incite an adhesion. This was accomplished by means of a truss with a hard pad which was tightly put on the tumor and allowed to remain until intense pain ensued; then a softer pad was substituted. The closing of the neck of the hernial sac could be achieved by operative interference, if its anterior surface was scarified to cause an inflammation and then closed by a light weight truss. There was also a method extant to separate the hernial sac from the cellular tissue of the testicle and tie it close beneath the abdominal ring or return it into the abdominal cavity (Petit–Arnaud). Subligation Schmucker deemed the most reliable method of the radical cure and, on account of employing this in an operation on the body physician Zimmerman, became involved in a quarrel with Richter. The radical cure was often successfully carried out by Acrel, but he, like Petit and Sharp, saw patients die with it. He asserted that in many old ruptures the abdominal ring had been so greatly distended, that the best truss could not keep back the rupture, while by means of the operation, the same, if it could not be closed, could at least be sufficiently narrowed to permit of the use of the truss afterward. Operative interference in reducible hernia was opposed by Pott, B. Bell and Richter. The last surgeon rejected it entirely, with a few exceptions, having known the easiest, simplest and quickest operation to end fatally; and according to J. L. Petit's view, it was more dangerous than in strangulated hernia. Of course, Richter admitted the possibility of obtaining a complete cure with the aid of a truss and caustic and scarification of the neck of the hernial sac, yet all methods were uncertain and perilous. For the opponents of the radical cure there existed no other method but the truss, for the shape and application of which Richter's directions were very accurate. The inelastic rupture bands, which were very popular for a time, he absolutely rejected, and he had no use for the movable pads. The truss should always be put on by the surgeon the first time and then worn by the patient day and night. There was a difference of opinion regarding ruptures in children. Mohrenheim advised not to use the truss, the child being too weak to stand it; besides, the band would ever be wet through with urine. He gave wine with sal ammoniac, had enemas administered daily and saw the hernia disappear gradually. Pott, on the other hand, ordered every child, however young, to wear a truss of feathers; he thought the prevalent idea that it was impossible for a child to wear one, erroneous.

In strangulated hernia we follow especially Richter's methods. The cause of the strangulation was most frequently located in the abdominal ring, which, consisting of sinews that were continuations of the m. obliq. ext., might become constricted. A second cause, probably first observed by Saviard, arose from the constriction of the neck of the hernial sac due to the thickening and callosity of the same (resulting from pressure caused by the truss, Monro), also an aperture in the hernial sac, sustained through injury (Garengeot); or a partition wall in the same (Mohrenheim) could constrict the intestine; likewise the omentum becoming twisted with a portion of the intestine and driven into a pre-existing hernia (Callisen), or the hardened omentum pressing upon the intestine (Pott). Often the excrement was the cause of the strangulation. Richter distinguished an inflammatory strangulation, one caused by excrement, and added a third, the spasmodic. In this, the symptoms, with their intermissions and exacerbations, were mitigated by quieting remedies. It was often very difficult to determine the cause of the strangulation, which could also be conditioned by acrid bile and worms, and yet the success of the cure depended upon it. "Rational treatment of strangulated hernia requires far more knowledge and skill than an operation," Richter proclaimed to the surgeons.

There were various curious methods of taxis. One of the most favored was to tie up the patient to a strong man in such a way that his knees rested on the shoulders of the latter, the body hanging down from him (Sharp, Morand, Louis). The pressure, at first mild, was gradually increased, continued for a long time, and in inguinal ruptures was effected from below toward the top and from the inside toward the outside against the abdominal ring. Another manipulation consisted in pressing all parts of the entire rupture toward the inside toward the center of the swelling; a third method was to draw out the rupture and unfold the intestines; particularly was this used when there was an accumulation of fecal matters. The fourth manipulation, especially adapted to small ruptures, was to place one or two fingers at the side of the neck of the hernial sac on the abdominal ring and gradually press them back into the cavity of the abdomen.

Richter demanded that the taxis be continued for

an hour, but called attention to the exaggerated desire on part of the surgeons to continue the pressing in the following words: "Although I am free from being inclined to absolutely reject taxis, I must confess, pursuant to my experiences, that I think less of that manipulation than do the majority of the surgeons who consider it the principal method; and I am convinced that it is often harmful, seldom successful, but if successful seldom effects a complete cure. Rarely have I seen that a highly dangerous form of strangulated hernia could be returned into the abdomen, and in cases where it was returned, so many other remedies had assisted to mitigate the conditions, and after the preceding fruitless attempts the rupture retreated so unexpectedly and easily that I was always inclined to believe it would have gone back after a few hours, of its own accord." Likewise Pott did not strictly rely on the taxis, as at times it could be successfully employed after a week, and in other cases death ensued the same day. Desault considered it of great value never to employ the taxis immediately after the strangulation, as had been the general custom, but to precede the same by baths and softening poultices; furthermore it should be carried out very gently, since after vigorous manipulations the operation usually ended fatally. "There is always hope in a rupture that has not been touched before the operation." Unfortunately nearly every consulting physician who had been summoned allowed the tumor to pass through his hand, pressing it with great delight. If the entire hernial sac, the neck of which was constricted, with the intestines had been returned into the abdominal ring then the strangulation could continue. This fact had been observed by le Dran, la Faye and Arnaud, who produced dissections to prove the same. Louis, on the other hand, considered this reposition impossible on account of the firmness of the cellular tissue between the hernial sac and the testicle, and on account of the abdominal ring being too narrow; in short, he was very much in doubt about it, because he did not understand the matter. This vexed Richter and he replied: "If everything that we can not explain is not true then 100,000 truths which are daily before us would be false and we would no longer have the sun. But if in spite of this fact Mr. Louis continues, and because he can not comprehend the matter declares it an impossibility, and thereby intimates that the aforesaid three surgeons had fabricated their observations, then he is guilty of great impudence, and I, for my part, must confess that I by far more appreciate the experience of an Arnaud, the greatest authority on hernia that ever lived, than all the theories and over-refined reasonings of Mr. Louis, and that to me the trustworthiness of a le Dran and la Faye is of greater importance than all the assertions of Mr. Louis."

Various internal and external remedies are used to assist the taxis. Mild purgatives (Epsom salts according to le Grand's directions, or a decoction of herb. nicotian. and rhubarb) were recommended by Richter in strangulations due to excrement and worms, but he advised against them in case of inflammations. Pott, however, did not think much of purgatives, because the constipation resulted from the constriction of the hernia, therefore the treatment must be directed toward the latter; according to Bell's and Wilmer's ideas they caused more harm by irritating the intestine and increasing the vomiting. Among the injections the one of tobacco smoke was thought the best, especially in spasmodic strangulations. It is said that Heister was always so successful in employing it that he never found an opportunity to perform the hernial operation. Yet there was a difference of opinions. While a few obtained good results but seldom from the use of the tobacco enema (B. Bell), or rejected it altogether and used water instead (Latta of Edinburgh), others were full of its praise (Pott, Wilmer, Richter). The last surgeon demanded that the smoke of a good and strong tobacco be blown into the hernia for at least an hour. For "this is the most common error on the part of surgeons in strangulated hernia; they like the frequent changes in methods and do not use one persistently, and yet there is seldom one that affords a speedy relief; generally we gain our purpose only by persistence." Injections of cold water and vinegar were also recommended (Theden). Of the antispasmodic remedies, the tepid baths chiefly assisted the taxis. It was always the first method employed by Desault; the baths were given two or three times daily, lasting for hours at a time. With the aid of warm baths, poultices and plain injections, Desault saw serious strangulations disappear without necessitating a taxis. Then linimentum volatile was rubbed in and poultices of camomile and linseed applied, for internal use ipecacuanha and poppy juice were given. General bleeding to the verge of faintness was the method resorted to in inflammatory strangulations, which was rejected by a few who did not see the taxis succeed through the exhausted condition (Wilmer, Alonson). Warm poultices, especially indicated by spasmodic and fecal strangulations, Richter ordered put over the entire abdominal region, not on the rupture alone. Many parties opposed the same (Pott, Monro, B. Bell, Wilmer and Keate). They did not think much of the poultices because the effect produced did not penetrate deeply enough, because the intestines were distended and the swelling increased. Pott even believed that the faith in them on account of the irretrievable loss of time had killed more people than saved them. Instead of warm poultices cold compresses were advocated. These (according to Richter) "incited the intestines to greater activity, thereby distributing the excrement and flatulence, contracted the blood vessels, freed them from the impeding fluids, reduced the size of the rupture, mitigated the pain and assisted the return of the hernia into the abdomen." The rupture and the limbs were suddenly treated to a shower bath of ice-water (J. L. Petit, Arnaud), or poultices of ice were made (Monro, Richter, Schmucker, Theden). Also by means of sugar of lead, water mixed with vinegar (B. Bell), by a solution of sal ammoniac (Wilmer), and evaporation of ether on the rupture (Hughes), frigidity was produced. Richter thought it contra-indicated by serious inflammation and violent pain, and by spasmodic strangulation, but wished this method only as a last recourse for a few hours when all others had failed.

When all methods proved of no avail, the operation became a necessity. But when was it to be performed? To designate the proper time, Sharp considered a more difficult task than to accomplish the operation, and Pott held the opinion that there was probably no subject in surgery which required greater power of judgment, more firmness and care than was necessary to determine the period beyond which it would be dangerous to defer the operation. By the majority of the German surgeons the operation of herniotomy was carried out too seldom and too late.

They experimented principally with internal and external remedies in the hope of diffusing the hernia, and tried everything imaginable. Thus, precious time was wasted, the symptoms increased in intensity and then came gangrene or mortification. The reason for this delay is found in the fear of resorting to the knife. It was otherwise in France, where, in the 90's, herniotomy was performed unusually often and the taxis seemed to have been neglected. Desault is credited with the honor of having revived herniotomy. At one time eleven whom he had operated on died in succession, while at another time fourteen patients similarly treated survived the operation and recovered. All good surgeons were convinced that it was best to operate immediately if the symptoms did not abate after applying the usual remedies for several hours. Pott asserted that if the operation was performed at the proper moment it would always fulfil the desired purpose, and believed himself justified in saying that not one case out of fifty would prove fatal if the operation be performed carefully and in good season. B. Bell wished all treatments energetically applied, but never longer than three or four hours, to be followed at once by operative interference; every minute of delay increased the danger. This principle was followed in Germany by Heister, Bilguer, Steidele and Richter, who said: "It is better to interfere too early than too late. The operation is in itself not dangerous nor very painful. The danger is not the result of the wound, but is generally caused by the length of time it is deferred. As soon as the hernia becomes so painful that a slight pressure can not longer be borne, no time must be lost and the operation must be performed, partly because the rupture is already highly inflamed and the danger of gangrene not far distant, and partly because the palliative methods are of no more use. . . . The smaller and the more recent the hernia, the more tightly constricted is the strangulation, the more pressing the danger. . . . When all methods vigorously applied have been fruitless the operation should be made without delay. The strangulation is worse tomorrow than it is today; hence, tomorrow these remedies will avail less than today." Pott reasoned similarly and said that no one can tell when a hernia becomes mortified. For several days the strangulated intestine might remain well and then again it might be gangrenous within twenty-four hours after the protrusion. Steidele had a similar experience of finding a hernia mortified, although the symptoms were very mild, the fever scarcely perceptible and the pain endurable. The cause of Morand's exceptional success in herniotomy was that he never deferred the operation long and preceded it with a mild taxis two or three times.

Concerning the technique of herniotomy, the incision was made above the abdominal ring, penetrating to the bottom of the tumor (Louis). Opening the neck of the hernial sac was, since Garengeot's time, universally believed to be necessary. Upon his and Mauchard's advice, the knife was held obliquely and the several layers of the cellular tissue separated by raising each one with a pair of forceps. Pott and Richter split the hernial sac upward, but not, as was usually taught, to the abdominal ring, but only within an inch or an inch and a half beneath the strangulation, only far enough for the finger to enter. As a living probe Richter considered the finger the safest means to prevent all injuries. If the hernial sac was very large, a portion of it could be cut off; the ligature recommended by Günz, Pott disapproved of. Light injuries were not considered as dangerous by Richter as many others believed them to be; they could be returned without any symptoms. "I am not all inclined to induce the surgeons to become inconsiderate and audacious, but I think it is my duty to encourage them when I see them being instilled with fear without a cause." The mode of procedure of not opening the hernial sac and only distending the abdominal ring was a method already used by Franco, who was the first to operate on a strangulated hernia (1561), and by Paré, but was not introduced into the practice of medicine until later by J. L. Petit. Consequently it bears his name. He had practiced the method for more than thirty years, refuted all objections and laid great stress upon there being less danger, no contact of air, etc. He protested that he did not reject the opening of the sac in every instance, for there was no question that it was necessary in gangrenous hernia. Petit's method, however, was not generally adopted. With the exception of A. Monro, Vater, Acrel, Richter and J. G. Wagner, the method was rejected by all the surgeons of the various nations. They cared nothing about it on account of the intestine and the omentum adhering to the sac, the eventual mortified condition of these parts, also the easy relapses, and the putrid fluid of the hernia. Pott regarded this method very contemptuously, spoke of writers who mentioned things of which they had no experience, but what they produced one copied from the other; he had but little to say of it and did not consider it worth his while to subject it to an examination. Richter compromised matters by saying: "It has become a sort of duty in these modern times to reject this method absolutely and in all cases. The one has repeated the words of the other, no one heeding the inventor's purpose and the cases in which he recommends them. The reasons for not opening the hernial sac are truly striking, but they are by far not so good and demonstrative as many seem to think. Ordinarily there is too much praise and too much censure. This method is not practicable in all cases, nor can it be positively rejected in all cases. Besides, the inventor did not intend its general use; he recommended it in special cases only. The idea of the general utility of this method seems to have been forced upon Mr. Petit, and at the same falsely attributed to him so as to be able to reject it. I hold the opinion that this *modus operandi* ought not to be rejected in all instances but employed wherever it would be of use and advantage and be permissible under the circumstances." Contraindications to him were adhesions of the parts in the rupture; great thickness of the hernial sac, so great that on the outside of the same no instrument could be inserted for the distension of the abdominal ring; also, gangrenous hernia and strangulations in the neck of the hernial sac.

For extending the abdominal ring the incision was either made toward the navel (Heister, Garengeot, Bertrandi, Richter), or toward the outside of the body (Sharp, Pott, la Faye). Desault was guided in operating by the position of the spermatic cord, for if, as usual, it lay behind or inside the sac, he enlarged the ring upward and outward; if it lay before or outside the sac, he distended the opening upward and inward. The instrument used for the distension was the simple scalpel with a dull and somewhat curved point (Richter), or the well known bistoury of Pott. For

this operation the French invented a number of useless instruments (Méry's winged sound, Morand's hernial bistoury, le Dran's hernial bistoury and other instruments). The knife was pushed in on the hollow probe, or on the finger, allowing it to press more than to cut. The distension sufficed, if it permitted the admission of the finger in the abdominal ring. Le Blanc and Arnaud wished to insert the finger and the hook, respectively, in order to distend the abdominal ring. This method was rejected by most of the surgeons. B. Bell considered it next to an impossibility, because Poupart's ligament was already so stretched that it was not capable of being distended any more, and Louis ridiculed such procedure. But Richter advocated the method in femoral hernia, so as to avoid the danger of injuring the epigastric region or the spermatic vessels: "I can not easily make up my mind to cut into the Poupart band in males, but will ever strive to widen the ring by this method. In inguinal hernia this method may be dispensed with, because then the cut can be made without danger, and yet the method ought not to be absolutely rejected." Intestines that had become discolored, either deep red, brown, or even black, could be successfully returned into the abdominal ring (Desault, Schmucker); only when they had become disgustingly mortified could they be treated as gangrenous hernia. After the reposition, Richter deemed it advisable to scarify and compress the neck of the hernial sac, thereby sometimes effecting a radical cure. After the operation a T-bandage and, during the entire treatment, dry charpie was applied, besides which fomentations were put upon the abdomen and mild purgatives as well as injections were given. If a part of an intestine had become gangrenous, it was fastened on the outside of the abdominal ring by means of a thread drawn through the mesentery; then the gangrenous portion was cut out and the sound portion reposited. But if the mortification covered a large surface, joining of the parts was not to be thought of unless both ends of the intestines protruded from the abdominal ring, otherwise all was left to Nature. La Peyronie and Ramdohr invented special intestinal sutures; du Verger joined both ends over the dry trachea of a goose to one another, etc. J. L. Petit principally favored the idea that Nature alone effects a cure, for he had seen several gangrenous herniæ heal almost without artificial means; therefore he thought most remedies for joining superfluous, yes, even dangerous. Richter held the same opinion. In an intestinal fistula he ordered a common elastic truss worn and under the pad of which a sponge or wad of charpie was placed on the opening. There was much dispute in regard to the treatment of the abnormal omentum. The first method used was the ligature. Most surgeons favored cutting it off and rejected Arnaud's special method of tying it off. At the most it was allowed when greatly developed arteries promised violent hemorrhages in connection with the incision. The dead portion of the gangrenous omentum was cut out and then it was returned, or if this was not possible it was left lying in the neck of the hernial sac; also the hardened omentum was left alone and only the abdominal ring distended in order to raise the strangulation.

Space does not permit us to enter more fully into the various kinds of hernia. The true nature of the congenital rupture was first determined by Haller, and William Hunter improved upon his work. There originated with Richter, for umbilical rupture in children, a bandage still used, which consisted of half of a nutmeg wrapped in linen, the application of which with the assistance of plasters and strips he described clearly enough, so that he alone merits the honor of the invention. For adults he suggested a special kind of umbilical truss. For the radical cure of hernia Desault resurrected the ligature heretofore recommended by Celsus, and prized it as a reliabe painless as well as safe method in the tenderest age of a child; this mode he had successfully used more than thirty times in the Hôtel Dieu within eighteen months. In femoral hernia, in which Gimbernat thought the seat of the strangulation located in the crural curve of the m. obliq. ext., to avoid the epigastric region the direction of the incision should depend upon the position of the rupture. If situated on the inner side of the femoral vessels the incision was directed obliquely toward the linea alba (Günz, Camper, Richter) and as closely as possible to the inner angle of the fissure. If the hernia lay on pulsating vessels or outside of them, then the cut was made outward and upward in the outer angle of the fissure. Wilmer cut directly upward, while B. Bell made several small incisions. If the epigastrica was injured, which was considered a very dangerous matter, it was necessary to interfere very energetically to reach the vessel, compress the same by means of Chopart's forceps, or ligature in order to stanch the flow of blood.

SOCIETY PROCEEDINGS.

Chicago Academy of Medicine.

Stated meeting, Oct. 15, 1897.

Dr. G. FRANK LYDSTON in the Chair.

The subject for discussion was "Hysteria," which was opened by Dr. BANNISTER.

DEFINITION OF HYSTERIA.

Dr. H. M. BANNISTER—The average conception of hysteria by those who have not given the subject more than casual attention is probably an indefinite one. It is considered as a condition without a very precise definition and into which may be thrown an infinity of morbid symptoms that can not well be referred elsewhere. The definitions that are given of it also show a considerable variety. Quoting only the most recent ones the following may be offered:

Lowenfeld says that it "is a general neurosis in which nevertheless a peculiar participation of the cortex or a primary predisposition renders possible a reference of a part of the symptom to the psychic sphere." Bartholow defines hysteria as "a functional nervous trouble characterized by various motor, sensory and intellectual disturbances, and by excessive variability in their seat and manifestations." Landon Carter Gray calls it "a peculiar increased reflex excitability of the cerebro-spinal nervous system, possibly also of the sympathetic, with decrease of cortical inhibitory power." In one of the most recent text books, Dr. J. Hendrie Lloyd defines hysteria as "a psychoneurosis of which the physical symptoms are the most conspicuous, tending to disguise the mental phenomena and to simulate superficially the effects of various organic diseases."

Of those who consider the disorder more especially a psychosis in its pathologic sense, or a mental disease, following the example of Charcot, I will quote the following definitions: Moebius defines as hysterical "all those alterations of the body which are produced by ideas." Osler, quoting Moebius, gives as his definition "a state in which ideas control the body and produce morbid changes in its functions." Oppenheim's definition is as follows: "A mental disease that reveals itself not in intellectual disorders but in anomalies of character and emotion and conceals its real nature behind an almost unlimited number of physical symptoms."

It will be seen that in these definitions there are embodied two conceptions of the disorder; one that it is a neurosis, understanding by the term a disease of the nervous system of rather indefinite nature and pathology, and the other that it

is in the proper sense of the word a mental disease. All mental disorders depend upon the derangement of function of the organ of the mind, or the cortical substance of the brain. For myself I would adopt the view of those who consider hysteria a mental disorder and would offer as a definition, which I do not consider, however, as necessarily better than those that have been given, but simply as conveying my present conception of the condition, the following: Hysteria is the manifestation of an original or acquired degeneracy in an ill-equilibriated action of the various cortical centers, characterized by lack of inhibition and heightened suggestibility. Reduced to its simplest expression this definition might be stated as that hysteria is an undisciplined functioning of the cortex. This, however, is not a perfectly accurate condensation.

The essential of hysteria as a disease is a degenerative basis. Every one has in him or herself the potentiality of hysteric symptoms, and under special stress of circumstances any one is liable to manifest them. But it is only in degenerates, and in proportion to the degree of degeneracy that it becomes a disease.

RELATIONS OF TRAUMATISM TO HYSTERIA.

Dr. HUGH T. PATRICK—The questions of most practical interest regarding the relation of traumatism to hysteria are two in number: 1. Does traumatism cause hysteria? 2. If so, does hysteria of this etiology differ from that due to other causes? Each question is to be answered in the affirmative, with certain qualifications.

For any morbid influence to produce disease there must be a susceptibility or a vulnerability of the organism so proportioned to the noxious agent as to allow of its domination. This axiom applies to hysteria as naturally as to fracture, toxemia or vicious education. In current parlance, then, traumatism may be the exciting cause of hysteria. But there are many diseases in which the exciting cause constitutes practically the entire etiology. A violent blow properly administered will invariably break the human fibula, and the injection of strychnin in a sufficient dose will be uniformly fatal. In such instances, however, the fragility of the bone or the comparatively feeble resistance made by the nervous system to the overwhelming power of a poison can not be regarded as a predisposing etiology, because the strength and vitality overcome are up to the normal average vigor of our present physical status. Is the case of trauma and hysteria somewhat analogous? In brief, may traumatism cause hysteria in a normal person? I shall certainly not assert that this can not be, but I believe that such an occurrence must be of an extreme rarity and I can state positively that an indubitable instance has not come within my personal knowledge. To enunciate a rule, then, in answer to the first question, it may be said that traumatism may cause hysteria, but, as a rule, only in persons with a certain abnormal somatopsychic susceptibility. For the practicing physician it is of considerable importance to know whether this morbid frailty can be affirmed in individual cases. In my experience it can, if a fairly good history be obtainable. Evidence of nervous instability, of nervous symptoms out of proportion to the cause, or of foregoing outspoken hysteria will become patent to the expert inquirer.

In attempting to designate the distinctive traits of hysteria excited by trauma, if any such exist, the subject may also be approached by the etiologic gate. Whether or not hysteria be a well defined pathologic entity, the ascendance of the more striking features in each single case are largely determined by the nature of the exciting etiology and the circumstances of its application. It is true that "traumatism" covers a broad domain of physical and mental injury associated in a melange of infinite variety, and imperceptibly loses its identity in related morbific agents; still, in the ordinary course of human affairs, it possesses certain leading characteristics by which it is currently and readily recognized as a something apart. So the hysteia of traumatism, while it can be said to present no single pathognomonic sign and, in an absolute ignorance of the etiology, it can be asserted of no case of the disease that it has been excited by traumatism and by traumatism alone, yet as a group, the traumatic cases may be said to present a certain somewhat vague but perceptible facies and to evidence somewhat characteristic tendencies. The most prominent of these distinguishing features relate to localization, pain, the admixture of symptoms of neurasthenia, hypochondria or melancholia, the rarity of general convulsions, to tremor and backache.

In the nature of things a traumatism injures one part of the body more than others and in harmony with an etiology more or less locally defined in its application, the more salient symptoms of traumatic hysteria are apt to be local, the point of injury determining the place where the more obtrusive of these will be manifest. Hence, monoplegia, localized spasm, isolated amblyopia and regional anesthesia are relatively frequent.

Almost a universal accompaniment of traumatism is pain, and hence it would be but natural to suppose that pain would be more constant and severe in hysteria caused by injury than in the same malady due to higher or more purely psychic influences. Experience has shown this to be the case.

As before noted, traumatism, with the immediately succeeding mental and bodily states, involves a most complex concatenation of pathogenetic influences and it is no wonder that the results are so widely discrete; the individual cases of consequent nervous trouble so atypical. In brief, with so mixed an etiology, a mixed clinical picture is inevitable, hence the anomalous so-called hysteroneurasthenia, hysteromelancholia, neurasthenomelancholia, etc. It is for this reason, I think, that the patient hysteric from trauma, is apt to show the ready exhaustion, agorophobia and irritable weakness of the neurasthenic or the depression and lack of courage of the melancholiac, or both.

Traumatism rarely causes a powerful and general mental commotion without the intrusion of particular bodily harm, which would probably explain, what I believe to be a fact, that general convulsions (hystero-epilepsy) are somewhat rarer in traumatic hysteria than in other forms of the disease; but it is not uncommon for a scar or point of injury to constitute a so-called hysterogenic zone, pressure on which will cause a hysteric convulsion.

Tremor of some kind or another, often reaching in degree a marked shaking or jerking, is seldom absent in hysteria from trauma, and the relation of this symptom to the etiology seems clear. It is physiologic for a person physically or mentally shocked to tremble, especially after the moment of impact, when reaction and realizing consciousness supervene.

Finally, there can be no doubt that pain in the back, more or less spinal rigidity and tenderness along the vertebræ are more frequent in the traumatic cases than in others. The *rationale* of this prominence of back symptoms is obscure and I would not wish to speak positively on the subject, but I am quite willing to express a tentative opinion. The evidence tends to show that man was not always a biped; to stand erect is not always his prerogative. The dorsal and lumbar muscles and the vertebral ligaments are amply sufficient to maintain the perpendicular station under favorable circumstances, but they have not yet become equal to all the exigencies arising from modern civilization. The spinal column and its appendages are somewhat behind in the process of differentiation and specialization constituting development and thus remain a *locus minoris resistentiæ*.

THE RELATIONS OF HYSTERIA AND EPILEPSY.

Dr. SIDNEY KUH—Both hysteria and epilepsy are degenerative diseases of the brain. Therefore, they both develop most frequently in those whose central nervous system is congenitally weak. In both diseases the exciting causes may be the same. Violent emotions; injuries; intoxication with lead, alcohol, nicotin, morphin; acute infectious diseases; certain constitutional diseases may precede the first symptoms either of epilepsy or of hysteria. The influence of menstruation, pregnancy, the menopause, venereal excesses, overexertion upon both neuroses has been known for a long time. But even as we study the etiology of the two diseases, the fundamental difference between them becomes evident. Who has ever heard that a faulty education, that idleness had caused the signs of epilepsy to appear, two factors which undoubtedly play a most important role in the causation of hysteria and afford a satisfactory explanation for the pronounced prevalence of the latter trouble among the female sex in most civilized nations as well as for the remarkable fact ascertained by Briquet, that hysteria is very much more common in those religious orders in which all day is devoted to prayer and pious thought, than among those nuns who are active in nursing and in other charitable work.

While epilepsy seems to be a disease that has found its victims among all races and at all times, hysteria is more probably a relatively recent acquisition of humanity, one that came only with civilization and one with which even today the more barbarous races have barely met. The similarity in the symptoms of the two diseases is due to the fact that both must be localized in the same portion of the nervous system, and that both are in the majority of cases due to a congenital weakness of those organs. Hence both the hysteric and epileptic character have certain traits in common with that of the degenerate, and until the secondary mental changes due to frequent epileptic seizures develop, the epileptic, the hysteric and the degenerate are mentally very much alike. If there is any difference between them, it consists in

the fact that in hysteria the exaggeration of self consciousness, emotionalism, craving for sympathy and exaggeration of suffering, are more pronounced than in epilepsy, that in the former trouble there is occasionally a great display of, usually misdirected, energy or of theatrical unselfishness, which does not occur in epileptics.

In both neuroses, psychic and motor symptoms occur simultaneously, but in epilepsy the motor, in hysteria the mental phenomena prevail. How strongly hysteria is influenced by the mind is shown by the occurrence of epidemics of that disease. It is true that the witnessing of an epileptic seizure in another person does occasionally produce a spasm in a predisposed individual, but who has ever heard of such epidemics of epilepsy as we read of in the history of hysteria in the Middle Ages and witness occasionally in our day in girls schools and cloisters. It is the psychic element, too, that is responsible for the frequent changes so characteristic of most cases of hysteria, while in epilepsy the symptoms, though most of them occur only periodically, are in the main constant and unvarying. In the so-called hystero-epileptic seizure the mental element is evident in the "attitudes passionelles."

In their effect upon the human organism the two diseases differ widely. Neither the single hysteric attack, nor a series of them produce the same disastrous results as the epileptic fit. In the one stupor, violent headache and complete amnesia usually follow the explosion; in the other amnesia is as rarely complete as it is incomplete in the epileptic, and mind and body appear none the worse for the preceding violent exertion. In the one we see a series of attacks, a *status epilepticus* accompanied by hyperpyrexia; in the other, attack follows attack with no elevation of temperature at all, or at the worst only a slight one. The one disease exists for a lifetime, without reducing the mental condition to a lower level than it was at the beginning of the trouble; the other often within a few years, reduces the sufferer to a state of pronounced dementia.

All of this tends to show that while both neuroses are due to changes in the same organ, the nature of these lesions must be totally different. Epilepsy is a disease which we are today hardly justified in counting among the functional maladies. For besides those pathologic signs due to degeneracy, as asymmetry of skull and face, malformation of palate, irregularity of teeth, adherence of lobules of ears, etc., which are common to all troubles arising upon that same basis, we find organic changes in epilepsy, such as we do not see in hysteria. Chaslin, Féré, Bleuler and others have described hypertrophy of the neuroglia in certain parts of the brain, and one of these authors (Bleuler) states that this lesion, while distinct in the brains of all of his twenty six cases of epilepsy, was not found in any of the fifty-four cerebra of non epileptics. While there is some similarity in the etiology of epilepsy and hysteria, as well as in their symptoms, due to the fact that both neuroses are ascribed to the action of similar conditions upon the same organ, they are pathologically as widely different from each other as a diabetes inspidus is from chronic interstitial nephritis.

ABDOMINAL RELATIONS OF HYSTERIA.

Dr. F. S. COOLIDGE—I can not believe that hysteria is caused directly by any derangement of the sexual organs. I believe, however, that certain derangements of the sexual organs by their repeated irritation can bring about such a state of the nervous system in a person who has a taint toward hysteria, that the taint becomes manifest and hysteria develops. You will remember that Stevens thought that eye strain was the cause of epilepsy, and that by cutting the muscles of the eye epilepsy could be cured. He failed in the majority of cases, but in some cases he was successful in relieving epilepsy by removing the exciting cause, the constant irritation of the nervous system, although the epileptic taint was still there ready to reappear should any other exciting cause manifest itself. So with reference to the abdominal and gynecologic relations of hysteria, I think in certain cases, if we can overcome the derangements of the sexual organs and do away with the constant irritation of painful menstruation, and other nervous phenomena incidental to them, we may often be able to materially relieve hysteria. But the old belief that hysteria was undoubtedly due to the sexual organs, and that the removal of these organs would cure hysteria, is passing away. Bushels of healthy ovaries, and tubes have been removed under that belief, and it is a fad that is yet running in certain localities. Recent statistics, however, disprove this theory. The most recent statistics I have seen are those given in the *Boston Medical and Surgical Journal*, in an abstract of a paper by Dr. Angelucci of Italy, who collected his statistics from asylums where the patients could be watched, and not where they were operated on in a hospital, then dismissed, or discharged as cured, no further record being kept of the patients. He collected forty-one cases which were operated on for pure hysteria, in which healthy organs were removed for the purpose of curing the disease. Of these forty-one cases, seventeen became insane, ten became worse, eleven were unaffected by the operation and three were cured by it. In other words, nearly three-fourths of the forty one cases either became insane or grew worse, and only three were cured. Of eighteen cases in which diseased sexual organs were removed, three became insane, six were not affected one way or the other and nine were cured. At the same time he collected six cases of pure hysteria in which a pretended operation was done, namely, a laparotomy, or possibly an incision not going through the peritoneum. All of these cases were cured.

It seems to me there is reason for this. In the first place, by removing the sexual organs, the ovaries and tubes, or the ovaries alone, there is brought about the menopause; and the menopause even in normal life produces what we might call a nervous shock, this shock extending over a period of some time causing a nervous condition which is of certain importance in the life of any woman. Not only does the menopause bring about a nervous shock in normal life, but if brought about early, by operation, the shock is augmented. This is one explanation why, in these cases of hysteria oophorectomy, with or without removal of the uterus, three-fourths of the patients are made worse. The operation produces a nervous shock in addition to the hysteria which is already present and makes the patient worse. In the case of unhealthy tubes and ovaries removed for hysteria, one-half are cured and the other half remain either unaffected or are made worse. In them we have dealt not with the true cause, but only the exciting cause of hysteria. In the six cases of hysteria in which a pretended operation was done, all of which were cured, we had the influence of suggestion.

So in any operation of this kind we have the value, on the one hand, of the influence of suggestion against, on the other hand, the bad influence of induced menopause, if I may so call it, and much in accordance with Angelucci's statistics, the feeling at the present time is that the suggestion caused by the operation is not of as great value as the harm done by removing healthy ovaries. My belief at present is that it is absolutely wrong to operate for the removal of the ovaries in cases of hysteria unless there is sufficient disease in those organs to warrant it, and it is only in those cases in which the diseased organs are presumably the exciting cause of the hysteria that such an operation is justifiable.

I have had one experience in removing the ovaries of a woman who had difficult menstruation. The hysteria at all times was marked, but particularly so at the menstrual period. She died of acute mania on the fourth day after the operation. It was a single experience, but it was to me a lesson.

To sum up: According to the present status of this subject, it is unjustifiable to remove healthy organs in cases of hysteria without any palpable disease of those organs.

AUTO INTOXICATION IN ITS RELATION TO HYSTERIA.

Dr. W. A. EVANS—By the term auto-intoxication I mean the poisoning of an individual by the poisons that he himself produces. It does not include poisons produced by bacteria or other organisms in any of his cavities, and whose absorption he does in some measure control. It does include products of incomplete digestion or incomplete assimilation, the incompleteness being due to his fault or condition. For example, if by change in intestinal epithelium proteoses are not converted into serum albumin, or if anti-peptone is not transformed by liver cells, intoxication results. It then does not include intestinal putrefaction. It does include poisoning with leukomains and with proteoses and anti peptones. Auto-intoxication can produce hysteria. Hysteria can cause auto intoxication. Auto-intoxication can produce hysteria by changing the anatomy and physiology of the higher nervous centers so that they lack "balance," or by upsetting an equilibrium rendered unstable by this or other causes. Hysteria can produce auto-intoxication by excessive leukomain production, *e. g.*, by violent nervous or muscular effort, or by diminished excretion, *e. g.*, hysteric anuria.

THE ORTHOPEDIC ASPECT OF HYSTERIA.

Dr. JOHN RIDLON—It is more than likely that hysteria may simulate any disease or deformity in the province of the orthopedic surgeon. Personally, I have met with only the following: The hysteric spine may be mistaken for spondylitis or for scoliosis. In simulating spondylitis it may have a posterior curvature, but never a posterior angle. The spine may be more or less rigid, but the rigidity is rarely confined to the posterior curvature, and it is not equal in all directions, that is to say, there is often normal motion in one direction. The range of

voluntary motion is greater than the range of passive motion, especially if the patient's attention is directed elsewhere. Pain is usually local, whereas the pain of spondylitis is distant. Tender points along the spine are always, or almost always, found in the hysteric spine, and never found in spondylitis unless there be such local manifestations of inflammation as the development of an abscess. The hysteric spine is usually accompanied by other manifestations of hysteria.

When the curve of an hysteric spine is lateral it may be said to simulate scoliosis. In such cases it presents all the symptoms above enumerated, whereas a true scoliosis presents rigidity only after years of deformity, never presents local tenderness, and rarely either local or distant pain.

Simulating hip disease, it often presents very great rigidity without deformity, whereas in hip disease the deformity develops step by step with the rigidity. To passive motion, the rigidity of the hysteric hip is uncertain and shifting and has an elastic feel; the rigidity of true disease at the hip is always a fixed quantity at any single examination, that is, it is never more and never less, though it may be greater (or slightly less) at a second examination some days later. There is usually local tenderness, which is rare in true disease except during the formation of an abscess. The pain is usually at or about the joint; the pain in true disease is usually at the knee. Muscular atrophy is not present in hysteric hip; it is a constant symptom in true disease.

The same symptoms may be applied when differentiating disease at the knee. But at the knee the differentiation is not so easy, since in some instances there is present a puffiness and false fluctuation which closely resembles beginning tubercular synovitis.

The same may be said of hysteria at the ankle joint.

When hysteria affects the tarsus it is more likely to simulate talipes equino-varus than tuberculosis of that part.

When hysteric equino-varus is present the resemblance to the deformity resulting from infantile spinal paralysis is very great. Indeed, it may even imitate a congenital clubfoot except for the history. In both instances atrophy of the leg muscles, from disease in the congenital form and from paralysis in the paralytic form, is found wanting in the hysteric case.

In all diseases of hysteric deformity, profound anesthesia would seem to offer the key to the problem; but it should be remembered that recent deformity due to tubercular joint disease may disappear under profound anesthesia and, on the other hand, prolonged hysteric deformity may result in a structural shortening of the muscles on the concave side, which does not yield to even profound anesthesia.

There should be no difficulty in differentiating true wryneck from an hysteric condition in this region. In true wryneck the only symptoms present are those depending upon a structurally shortened sternomastoid muscle, whereas the hysteric condition closely simulates cervical spondylitis, from which it must be differentiated by the rules laid down in discussing spondylitis and the hysteric spine.

HYSTERIA AND ITS RELATION TO PREGNANCY.

Dr. C. E. PADDOCK—"The causes that directly determine the development of hysteria in an individual may be either physical or mental influences, or both. Of the two, the mental and moral influences are the more potent and the most frequent. The only disturbance common to all forms of the affection is that of cerebral functions, and we are not justified in looking beyond these for the primary development" (Gowers).

The physical conditions that may influence the development of hysteria are many, but disorders of the generative organs have always claimed the most attention. "Some morbid state of these organs is present in many cases, but the estimate that at least one-half of the sufferers from hysteria are free from such, is probably near the truth" (Jolly).

It is evident that whatever influence disorders of organs may exert, they are really the manifestations of the disease already in existence. As the term hysteria implies some uterine trouble, it is probably one reason why so much importance has been given to that organ in this relation. The etymology of the term is therefore misleading. To define hysteria, an accurate description of the individual with the ancestry and environments which surround the particular person seems necessary.

That hysteria is prevalent in all classes of society is apparent, but that heredity, education, climate and environment have their influence, there is no question. In the higher classes of society, idleness, social duties, dress, a sedentary life, furnish sufficient reason for the development of the disease. In the lower walks of life, unless it be among the dissipated and vicious, hysteria is seldom known.

In mild attacks hysteria may be controlled or modified by the will, but when the hysteric habit has got control of a person, the least mental or physical fatigue may produce a fit of nervous excitement due to exhaustion of nervous force, and the patient is no longer able to control this paroxysm by will power. It is a mistake, therefore, to look at these cases as controllable. They can no more be influenced by the will and stopped than can an eclamptic attack. Hysteria occurring in the pregnant woman means more to the obstetrician than the same does in diseases in general. Pregnancy is considered a physiologic process, but only when it occurs in a woman free from disease. In every case of pregnancy when hysteria develops, I will prove to you a previous hysteric tendency.

The causes of hysteria in gestation are the same as in the non-pregnant woman. Authors generally agree upon this. "Playfair's System:" "A pregnant woman may suffer from hysteric convulsions, but this condition is identical with the same disease in the non-pregnant, and they are in no way special in their nature." "Gleson's Midwifery:" "Hysteria is quite common at the commencement of gestation and hysteric convulsions are most frequent at this stage. It does not differ from hysteria in the non-pregnant." Similar extracts may be taken from writings by Tarnier, Lusk, Galubin and others.

Professor Valenta, in the *Arch. Gynäkol.*, XLIX, Vol, 1, p. 189, 1895, reports a case of hysteria in first pregnancy. The patient was in the fourth month, was very hysteric, and wished to get rid of the child. The case threatened to pass from a nervous to a psychotic state. Abortion was performed. As soon as the membrane was ruptured all signs of hysteria ceased. There was an absence of any pathologic condition of the genitalia, but that there was a lesion somewhere is proven by the further statement that the case had been hysteric from childhood. Her father died of delirium tremens, and her paternal aunt was insane.

I can quote cases, in my own practice, of pronounced hysteric tendency, increased perhaps from psychic and physical reasons, such as maternal impressions, vomiting, etc., but in all these cases we do not have to look far for a cause.

From my own observations I formulate the following:

1. Pregnancy itself is not a cause of hysteria.

2. Hysteria in pregnancy has the same primary formation as hysteria in any other form.

3. Heredity plays a very important part in its etiology, and the womb is no more a factor than any other organ which may be diseased.

4. Cases previously hysteric are not benefited by pregnancy, their offspring are alike hysteric and degenerate, and our social and moral obligations are not enhanced by bringing such children into the world.

HISTORY AND MEDICINAL THERAPEUSIS OF HYSTERIA.

Dr. GEO. F. BUTLER—The earliest medical conception of hysteria is presented by Shakespeare in Lear, when that king ere his madness says:

> "O, how this mother swells up toward my heart,
> Hysterica passio down, thou climbing sorrow,
> Thy element's below."

In this, Shakespeare fully represents the old conception of Hippocrates, that hysteria was due to strangulation by the womb. To this strangulation, which resulted not from the womb moving about, but from some supposed reflex nerve performances akin to those utilized so lucratively today, were due, according to the Greek physician, six hundred and odd disorders of various types closely allied to those now ascribed to hysteria. As the male, in the hermaphroditic conception of the Greeks, was supposed to have a "spice of the mother," as the womb was called equally by Greek, Celt and Teuton, Hippocrates, like Shakespeare, naturally finds these disorders in men also; a conception that was supposed to be peculiar to the nineteenth century. During the centuries down to the sixteenth, many diverse notions of hysteria obtained, varying between the limits observed today. Rislau, Diemerbock and Bonnet attempted to establish, in the sixteenth century, that relationship between the female genitals and hysteria which has proven so lucrative to *fin-de-siecle* gynecologists. Nearly coeval with Shakespeare, Harsnet showed that when devils were cast out by miracle, the alleged devil was merely *hysterica passio*. About this time Dr. Jorden, in a treatise on "Suffocation by the Mother,' strongly urged the reflex notions common to Hippocrates and modern gynecologists. In 1620 Lepois claimed a cerebral basis for hysteria. Indeed, during the sixteenth, seventeenth and eighteenth centuries, medical disputes as to the genital or reflex or cerebral origin of hysteria were as animated as at present. Sydenham, employing the term "animal spirit" for what would now be called nervous force, supported the cerebral side. Erasmus Darwin, the eminent clinician and neurologist of the eighteenth century, accepting the cere-

bral theory, anticipated many of the views of Brown-Séquard and Charcot. A fair idea of the views entertained by general practitioners of the eighteenth century as to hysteria may be gleaned from Smollett's description of the hysteric servant girl in "Humphrey Clinker." The girl displayed all the convulsive conditions and emotional outbursts supposed to be characteristic of the modern fine lady. This servant girl (being in Edinburgh, where the practice then, as in Chicago today, was to throw all garbage into the alleys), remarks: "A sweet savor comes from such a number of perfuming pans, but they say it is wholesome, and, truly, I believe it is, for being in the vapors and thinking of Isabel and Mr. Clinker I was going into a fit of asterisks, when this fiff, saving your presence, took me by the nose so powerfully that I sneezed three times, and found myself wonderfully refreshed, and this to be sure is the raisin why there are no fits in Hadding burrough."

The peculiar effects here ascribed to odors survive in much of the medicinal therapeusis of hysteria today. Certainly the use of musk, castoreum, assafetida and the valerianates suggests the potent effect of stimulus to the olfactory anesthesia of the hysteric.

Medicinal treatment for centuries has practically ranged along the lines of the antispasmodics. In the early sixteenth, seventeenth and even eighteenth centuries, skatologic therapeusis of the type indicated by Smollett was not an uncommon phenomenon. Of this therapeusis the *mistura diabolicum* of the first half of the present century was a sturdy survivor. Its essential ingredients of olfactory unsavoriness were added according to the taste and fancy of the prescriber and his sense of the exigencies of the case. The medicinal treatment of hysteria should be based on certain essential principles: The avoidance of excess in drugging; the avoidance of narcotics in order to prevent the formation of drug habits; discretion in the use of the bromids in order to avoid bromism and resultant debility; the careful use of cathartics that constipation with its frequent serious effects on the general, mental and nervous state of the patient may be avoided; counterirritants to protect the patient against local vasomotor results of auto-suggestion so frequent in hysteria.

For the relief of the vasomotor instability resultant in the various emotional states, zinc and other valerianates are often useful. Against this, and the erotism, camphor monobromate is frequently beneficial.

To secure slumber, whose non-existence should first be ascertained, trional, phenacetin and sulphonal, rather than chloral or morphin, should be used.

For the relief of the pseudo-anginas, glonoin or strychnin is of value. In the convulsions of grave hysteria, the hypodermic administration of apomorphia will often prove beneficial or glonoin, or the inhalation of amyl nitrite may prove equally valuable.

Hysteric aphonia and deafness have frequently been removed by amyl nitrite.

LOCAL AND GYNECOLOGIC PROCESS OF HYSTERIA.

Dr. W. H. RUMPF—Dr. Coolidge has said so much concerning the relations between hysteria and gynecologic diseases, that there is very little left for me to add. Undoubtedly, impairment of the functions or disease of the genital organs have a great influence upon the nervous system, and any derangement of these would naturally increase the neurosis that might be present. Any disease of these organs would be treated either locally or by operation according to the rules that govern us in our gynecologic work, whether hysteria is present or not. It is very essential to warn against unnecessary treatment when hysteria is present, and in many cases better results are obtained by mere suggestion and mental treatment than by actual operations.

(To be continued.)

American Public Health Association.

Twenty-fifth Annual Session Held in Philadelphia, Oct. 26-29, 1897, at the Hotel Walton.

(Concluded from page 1222.)

A BRIEF REVIEW OF THE WORK OF THE SAND FILTERS AT LAWRENCE, MASS.,

was a paper by H. W. CLARK, chemist in charge of the Lawrence Experiment Station. Up to 1875, the water of the city used for all domestic purposes was obtained from ordinary wells. In that year, however, a public water-supply system was constructed and the water pumped to the reservoir and distributed to the citizens from the river at a point about one mile above the city. Nine miles up the river from the intake was the city of Lowell, having at that time a population of 85,000. The sewage of Lowell was and is still discharged into the river, and above Lowell are other cities and towns also discharging their sewage into the river. This water supplied to Lowell was then, from the first, beginning to be badly polluted, but was evidently purer than the average well water previously used, as shown by a considerable decrease in the death rate following its introduction. Gradually, however, typhoid fever became more and more prevalent, and finally the death rate in the city from this disease became the highest in the State, being about three times as great per 10,000 population as the average city of the State. The cause of the epidemics which prevailed during months when other cities were comparatively free from it was the polluted water-supply, and the question of a new supply began to be agitated. In the meantime, investigations in regard to the purification of Merrimac river water by sand filtration had been carried on at the Lawrence experiment station of the State Board of Health, and had resulted so satisfactorily that as early as 1891, the city was advised to construct a sand filter large enough to filter the entire water-supply, and in 1892 the city government made an appropriation for beginning its construction under the State Board of Health. In January following the starting of the filter, the number of cases of typhoid fever was nine, or one eighth as many as during the previous January. This fact is more striking when we note that in Lowell during this month there were ninety-nine cases, or three times as many as during the previous January. In January, 1896, there were six cases; January, 1897, two cases. A more satisfactory demonstration of the effect of the filter upon the health of the people of Lawrence can be made, however, by stating that in 1887 the deaths from typhoid fever were 12 per 10,000; in 1889, 13.75 per 10,000; 1890, 13.33; in 1891, 12.20; in 1892, 11.11. During 1893 the filter was built, and hence a portion of the year filtered water was being used. In 1894, filtered water was in use during the entire year, and the death rate from this disease was five per 10,000; during 1895, it was 3.07; 1896, 1.86, and the rate for the present year promises to be exactly the same as for 1896. Besides giving a water free from disease germs, the filter is also giving a cleaner water, more attractive and palatable and containing but 50 per cent. of the organic matter of the river water.

In the evening the Association was received formally by the Mayor, and were given an opportunity to go through the public buildings, which were brilliantly lighted for that purpose.

FRIDAY SESSION.

By invitation of the trustees and faculty of the University of Pennsylvania and by special permission of the students, the Association met in Houston Hall.

After the usual report of the Executive Committee, the nominations for officers for the ensuing year were announced: President, Dr. Charles A. Lindsley, New Haven, Conn., Secretary of the State Board of Health; first vice president, Dr. Benjamin Lee, Philadelphia, Secretary of the State Board of Health of Pennsylvania; second vice-president, Dr. John C. Shrader, Iowa City, Iowa; secretary to fill the unexpired term of Dr. Irving A. Watson, resigned, Dr. C. O. Probst, Columbus, Ohio, Secretary of the State Board of Health; treasurer, Dr. Henry D. Holton, Brattleboro, Vt., member of the State Board of Health. Next place of meeting, Ottawa, Canada.

Mr. RUDOLPH HERING, C. E., of New York, reported on "Disposal of Garbage and Refuse." He made the statement that besides the reduction of the garbage to grease and as a fertilizer, or its total destruction by cremation, there is no other process the committee can mention as commendable from an economic or sanitary point of view.

Dr. C. O. PROBST of Ohio reported for the Committee on Transportation and Disposal of the Dead and favored the shipment of bodies previously prepared by a licensed embalmer, the body placed in a hermetically sealed casket. Dr. Henry Mitchell, Secretary of the State Board of Health of New Jersey, objected to this as creating a special class of workers to whom all such work would necessarily be referred. He offered a motion which was adopted, striking out licensed embalmer and inserting under the supervision of the provincial or State sanitary authorities.

Dr. MITCHELL presented the report of a committee to examine and report on the existing sanitary municipal organizations of the countries belonging to the Association with a view to mention those which had been most successful in practical results.

UNIFORM AND CO-OPERATIVE HEALTH LAWS,

was presented by S. P. HEILMAN, M.D., of Heilmandale, Pa., Medical Inspector for the County of Lebanon, Pa. He said: "I appear before you today in a dual capacity as an officer of the State Board of Health of Pennsylvania and as a member of the Farmers' National Congress. At the recent session of this

Congress held at St. Paul a resolution was adopted favoring uniform and co-operative health laws, and a committee of three appointed to further the matter of the resolution. As a system of uniform and co-operative health laws applicable to all parts of the wide domain of our United States can hardly be thought of as attainable without the pre existent establishment of a National Department of Public Health, headed by a Secretary of Health or a Commissioner of Health. Our committee assumes that that is what was really in view when the resolution favoring uniform and co operative health laws was offered and adopted. You are aware that at the last meeting of the AMERICAN MEDICAL ASSOCIATION, held in Philadelphia June 1 to 4, 1897, a committee was appointed to draft a bill for a Department of Public Health and to define its duties, with instructions to present said bill to the United States Congress at the next meeting of the same. Such a bill has now been drafted by that committee. This measure, if presented to the United States Congress by an Association as distinguished and learned as the AMERICAN MEDICAL ASSOCIATION, seconded by the Farmers' National Congress (whose part in the matter has just been explained) and reinforced by this most distinguished American Public Health Association, more largely concerned in the matter than either of the two associations named, and by far the better judge as to the necessity for a department of public health, and whose deliberate averment would be an invincible argument in favor of a department of public health, our committee respectfully submits, if presented with the recommendation of the three bodies named ought to go to the Congress of the United States with a force commensurate with the dignity, learning and influence of the bodies making the recommendation.

Some considerations on the "Hygienic Influence of Forests" by Prof. SALVADOR GARCIALDIEGO, Dean of the Medical College of Guadaljara, Mexico, was read by Dr. A. L. Gihon, U. S. N., retired.

The Executive Committee, as a part of its final report, recommended favorable action on the proposition to establish a National Department of Health; this caused much discussion before its final adoption.

Dr. P. H. BAILHACHE, U. S. Marine Hospital-Service urged delay and held it as improper for this an International Congress to take such action for one country, concerning which the others had no right to act. Whatever we of the United States might think of it, Canada and Mexico, a part of this Association, really had no right to give any advice.

Dr. A. L. Gihon opposed this view, and argued strongly in favor of the adoption of the report of the Committee.

Dr. E. O. SHAKESPEARE of Philadelphia, regarded this most important and action should be taken with proper consideration. The proposed bill was too long and in some places the language was ambiguous; he objected to the bill. He urged the return of the bill to the Committee for further consideration.

A vote was taken adopting the report as read, and the following resolution:

Resolved, That this Association reaffirms its urgent opinion, and petitions the Congress of the United States to organize and establish a National Department of Health, and orders a copy of this resolution to be transmitted to Congress with the report of the Committee on Health Legislation, and the accompanying papers.

THE PRESENT MORTALITY RATE IN DIPHTHERIA

was presented by I. NEWTON SNIVELY, M.D., Philadelphia. He said: The American Pediatric Society made the significant statement that, in its judgment, the results from the serum treatment of diphtheria would gradually further improve. The reasons given for this statement were that, 1, antitoxin is still frequently used too late, either from procrastination on the part of the physicians or objections on the part of friends; 2, it is given in a half hearted way and often in doses one-tenth to one-fourth as large as they should be. It has been frequently observed that the percentage of recoveries under antitoxin treatment has steadily increased from the beginning. The present mortality, the lowest ever recorded, is pronounced by most observers of large experience with the remedy, especially in private practice, as being entirely too high to represent the power of the remedy. He quoted from Holt the statement that from the most trustworthy statistics it appears that the actual mortality from diphtheria, including membranous croup, has been reduced at least one-half by the general adoption of serum treatment, and that in cases injected reasonably early the mortality is less than 5 per cent. The present mortality, all cases being included irrespective of the brand of antitoxin employed, or the day on which the serum treatment was introduced, was given as follows: General, 8 to 10 per cent.; general (antitoxin used reasonably early) 5 to 7 per cent.; laryngeal types, 21 per cent.; operative laryngeal cases, 27 per cent.; non-operative laryngeal cases, 17 per cent.; number of laryngeal cases, requiring operation, 17 per cent.

The doctor then proceeded to show upon what a further reduction in the fatality from this disease must, in his opinion, depend. He observed that a study of the vast accumulation of reliable literature on the subject shows great improvement in three distinct lines: 1. In the production of the remedy, a more concentrated and potent product being now available. 2. The treatment is introduced earlier than formerly, 3. Appreciating more and more the efficiency and harmlessness of the remedy, the physician uses larger doses and, where repetition is found necessary, waits a much shorter time.

Speaking of improvements made in the remedy he observed what is now so generally conceded, namely, that the greatest improvement yet made has been in producing a much more concentrated product. The antitoxins now available to the profession vary in potency from 50 to 500 immunizing units to each cubic centimeter of serum. The major portion of the products range in strength from 100 to 200 units per cubic centimeter of serum. The most concentrated antitoxin in common use is that known to the profession as "Extra Potent" (Mulford's), containing 500 units to each cubic centimeter.

The advantages of concentration were then minutely pointed out. Such serums disturb the tissues but little because of the small quantity to be injected, they are quickly absorbed and always produce earlier results. The advantages of concentration in producing earlier and better results were compared with those of tinctures and fluid extracts over the infusions of the older pharmacopeias. Only such products are recognized in the recommendations of the American Pediatric Society.

In the early days of antitoxin treatment it was proper to speak of obtaining results from a curative dose in from twenty-four to forty-eight hours. At present effects are expected in from twelve to eighteen hours, and are secured early in proportion to the degree of concentration of the antitoxin employed. The general employment of concentrated antitoxins of uniform quality will insure increasing success in the treatment of diphtheria and membranous croup.

The importance of care in the selection of antitoxin was then pointed out and the fact cited that examinations made by the Pennsylvania and Massachusetts State Boards of Health and the *Medical News* all show the presence in the market of serums of weak, variable and uncertain quality. The importance of eliminating such either by proper State authorities or by the careful practitioner was emphasized as essential, if the fullest powers of the remedy are to be secured.

Reverting to the hostility which some physicians still show toward the treatment, the doctor observed that the principles upon which the remedy is obtained and employed are now so firmly established both experimentally and clinically, that there would seem to be no reason why the entire profession should not accept them.

The importance of instructing the laity to report all cases of throat ailment early was emphasized and the reasons for the superior results from early antitoxin treatment pointed out.

Antitoxin must be employed as any other antidote in order to obtain the greatest possible results. At present no rule for dosage can be laid down except that the dose should always be graded to the severity of the case and that no dose of less than 1,000 units should be considered a curative dose. The importance of the initial dose as compared with any other that may be required in an individual case was clearly pointed out. Experience has explicitly shown that in severe cases one dose of 2,000 units will result in a larger percentage of cures than will three or four doses of 1,000 units each, given at intervals of from twelve to thirty-six hours. No maximum limit of dose has yet been ascertained and probably does not exist. Reports from large users of antitoxin show that at present curative doses ranging from 1,000 to 6,000 units are employed with excellent results.

The further increase in the rate of recovery from diphtheria will depend upon:

1. The production and use of only concentrated antitoxin.
2. The elimination from our market of all serums of variable, weak and uncertain quality, no serum of less than 200 units per cubit centimeter being accepted.
3. The general employment of approved serum, according to the best teaching of the profession.
4. By treating each case of the disease as speedily as possible, aiming to neutralize the absorbed toxins and arrest the disease.
5. By treating the constitution and the disease in the same way, namely, by meeting specific indications.
6. By guarding against fear and other undue exertions, psychic and physical, on the part of the patient.

7. By endeavoring, as physician, to maintain a reliable mental equipoise.

A vote of thanks was passed for the hospitality shown the members by the city authorities, the entertainments by the ladies and the pleasant entertainments by the Committee of Arrangements, etc. The officers elect were then installed.

On Saturday those who had not left the city were taken down the Delaware River to visit the State quarantine station at Marcus Hook, where they were provided with a luncheon, thence to Reedy Island, where the disinfecting plant of the Marine Hospital Service was exhibited and explained, returning to New Castle, Del., where a special train was in waiting by courtesy of the Pennsylvania Railroad, which carried the party back to the City.

NEW INSTRUMENTS.

EXCISION OF THE TONSILS FOR HYPERTROPHY WITH RECURRING TONSILLITIS.

A MODIFIED INSTRUMENT AND THE TECHNIQUE OF ITS USE.

Read by Invitation at the Meeting of the Will County Medical Society, Nov. 23, 1897.

BY E. R. LARNED, M.D.

Member Chicago Medical Society, Will County Medical Society, American Medical Association, Etc.; Lecturer to Silver Cross Hospital Training School.

JOLIET, ILL.

Excision of the tonsils in cases of hypertrophy, with frequently recurring attacks of tonsillitis, promises more for the patient's immediate relief, and affords a more certain cure, than partially removing the glands; and to facilitate this procedure I have devised a modification of the Ingals' or Bosworth cold wire snare, which has proven so satisfactory as to merit a description.

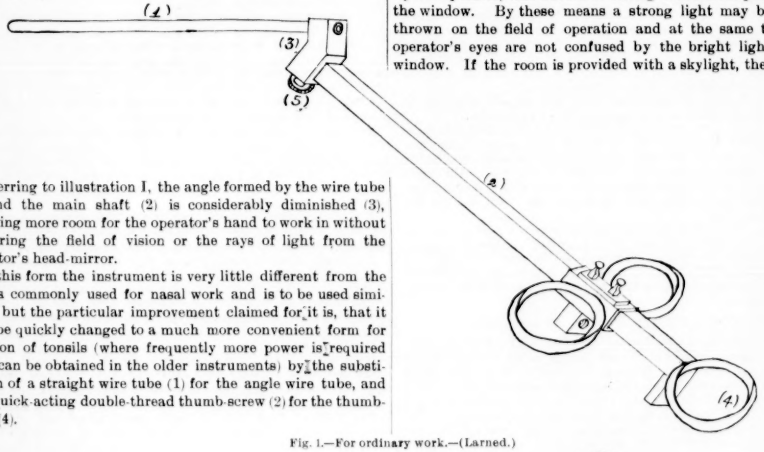


Fig. 1.—For ordinary work.—(Larned.)

Referring to illustration I, the angle formed by the wire tube (1) and the main shaft (2) is considerably diminished (3), affording more room for the operator's hand to work in without obscuring the field of vision or the rays of light from the operator's head-mirror.

In this form the instrument is very little different from the snares commonly used for nasal work and is to be used similarly, but the particular improvement claimed for it is, that it may be quickly changed to a much more convenient form for excision of tonsils (where frequently more power is required than can be obtained in the older instruments) by the substitution of a straight wire tube (1) for the angle wire tube, and of a quick-acting double-thread thumb-screw (2) for the thumb-ring (4).

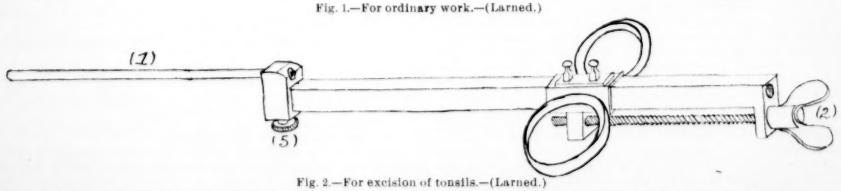


Fig. 2.—For excision of tonsils.—(Larned.)

That this may be done, the wire tubes have been made interchangeable and held in place by a small set screw (5) and a place provided for the thumb-ring to be screwed into the shaft. This changes the appearance of the instrument completely, as will be seen from illustration II.

The points embodied in this form of snare to which I wish to call especial attention are: *a*, The whole tensile strength of the wire is utilized instead of losing a good percentage of it by the friction at the proximal opening of the wire tube; *b*, the thumb-screw, with its double thread, acts quicker, easier and with more power than the milled nut used on the Ingals' snare. With this instrument complete excision of the tonsils can be made in only a little longer time than when using the ordinary tonsillotome.

The operation which this instrument was designed to facilitate is as follows: The patient complaining of attacks of quinsy each time a cold is contracted, is found upon examination to have hypertrophied tonsils.

This is a case where the ordinary partial removal would prove inadequate, if not actually adding to the patient's susceptibility to the recurring attacks of tonsillitis; nor would cauterization of the tonsillar crypts be of so much benefit. Frequently in these cases the tonsils are covered by the anterior pillars of the fauces and possibly this fact explains the frequent failure of tonsillotomy to permanently relieve the patient.

It is highly important that the field of operation be properly illuminated, and care be taken to select a room brightly lighted by a large window or a skylight, in which to conduct the operation. The patient is placed on a table parallel to and in front of the window. Back of the table a good-sized common mirror is placed, or held by an assistant, in such a manner that the light from the window is reflected to the head-mirror worn by the operator, who should be sitting between the patient and the window. By these means a strong light may be easily thrown on the field of operation and at the same time the operator's eyes are not confused by the bright light of the window. If the room is provided with a skylight, the light is reflected in the same manner, by holding the large mirror at the necessary angle to reflect the rays from the skylight to the operator's head-mirror.

If neither window nor skylight is available, a common "bull's eye" lantern, or a bicycle lamp, can be made to answer very well, if a regular laryngoscope is not at hand.

The operation should always be conducted with the patient thoroughly under the influence of a general anesthetic, chloroform being preferred for obvious reasons.

The posture of the patient is very important. After the patient is thoroughly anesthetized, a Waxham gag should be used to keep the jaws well apart, and held by the anesthetizer; he is then turned upon his abdomen, the face projecting over the side edge of the table (not the end), about half way, the head and uppermost arm being held by an assistant.

If, as is usually the case, the tonsil is more or less covered by the anterior pillar of the fauces, it must be separated from its covering by passing a blunt hook between it and the pillar.

The undermost tonsil is now seized with a forceps, preferably one made for this purpose, or a bullet forceps, or even ordinary hemostatic forceps, and the wire loop of the *ecraseur* passed over the locked handles of the forceps, being careful to have it encircle the gland completely; then steadily turning the thumb-screw will completely remove the tonsil, frequently without the loss of a drop of blood.

Turning the patient with his face to the other side of the table and then turning the table so that the patient faces the operator again, the remaining gland, which is now undermost, is quickly removed.

The entire operation can be carefully done in from ten to fifteen minutes, not counting the time used in anesthetizing the patient. There is no danger from hemorrhage and the tonsillitis can not recur.

The after-treatment should consist of gargling once an hour, except during sleep, for two or three days following the operation, with rather warm water containing five drops each of carbolic acid and oil of gaultheria to the ounce.

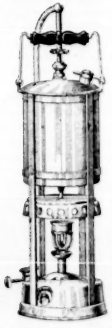
A careful observation of the many little points of technique in this description makes the operation neat and satisfactory to the patient's friends and the operator.

The snare has comparatively few parts and may be thoroughly sterilized by boiling. The instrument and sketches are the product of my leisure moments, but any instrument maker can manufacture the snare by reference to the drawings.

426 Barber Bldg.

APARTMENT DISINFECTION.

The value of formic aldehyde gas in disinfecting is now generally recognized, but there have been many difficulties attending its efficient application. The volume used must be amply large and liberated with sufficient rapidity to overcome all the



disadvantages. Dry heated gas is of highest value because it is most penetrating and, having a specific gravity equal to that of atmospheric air, mixes freely with air, thus producing its effects wherever air can penetrate.

In an effort to secure the best effects the following simple apparatus (shown in the illustration) has been devised. It consists of a Swiss heating lamp beneath a reservoir for commercial formaldehyde. Between these is a copper coil opening into the receiver and ending in a short gum hose, at the distal end of which is a thin feeding-tube. The opening from the reservoir into the tube is protected by a valve. When the tube is red-hot, the valve is opened to admit a small stream of solution of formaldehyde. This is instantly vaporized and the liberated gas and vapor intensely heated as it passes through the coil. The gas is not liberated under pressure, hence there can be no danger from inflammation or explosion. By means of the feeding-tube, an apartment is filled with gas through a keyhole or other suitable opening.

The apparatus is always on the outside of the apartment being disinfected, and is capable of filling an ordinary room within half an hour, so that one operator can easily disinfect as many as two dozen rooms per day, if not too remote one from the other. The apparatus can be obtained of H. K. Mulford Co., Philadelphia.

SELECTIONS.

The "Carlsbad Springs" of the United States of North America.

. . . The United States excels all other countries of the globe in the number and varying character of its mineral springs. . . . In the Thirty-second bulletin of the United States Geological Survey (1886) there is an elaborate, and as far as possible, exhaustive report, prepared by Albert C. Peale, M.D., in which there are mentioned 2,822 localities, containing 8,822 distinct springs. Of the latter but 634 have been quantitatively analyzed, and 153 tested simply for the nature of their ingredients (qualitatively analyzed). Of these, 223 were being used commercially in 1896, 17 having been added to this number in 1890, which is the date of the last general report on the subject.

The figures as above given, incomplete as they are, demonstrate that while the number of springs which have been analyzed is less than a quarter of those of Europe, the sum total of those in the United States largely outnumbers those of that continent, as enumerated by Dr. Friedrich Raspe in his "Heilquellen Analysen." This author gives between 2,800 and 2,900 analyses of as many different springs situated in various parts of the continent of Europe. This great disparity is obviously due to the older civilization of Europe, and the greater facility and cheapness with which analyses are obtained there. Among the springs of our own country, with whose composition we are acquainted, and which, in spite of our youth, have been fully tested as to their intrinsic qualities as health restorers, there are a great many which may fearlessly take up the gauntlet and challenge the most celebrated health resorts of the Old World as to their value and efficacy in this direction. If Americans prefer European spas to the springs of their own land, it is doubtless due to their desire to travel "over the sea," the benefits of a voyage, or to lack of acquaintance with the resources of our country.

Among the oldest and most celebrated mineral springs and health resorts of Europe Carlsbad claims a prominent place, a claim readily granted by balneologic authors, as its springs have enjoyed for centuries a deservedly high reputation as a "resort for invalids and not for pleasure." . . . The hot waters here issue forth from a subterranean basin whose nature and contents have been plainly elucidated by Berzelius, who demonstrated "that the incrustations produced by the decomposition of the water in contact with the atmosphere has formed a roof, through which the waters below it forced them-

selves to the surface, at a temperature higher or lower according to the distance they had to travel beneath the shell before finding exit." There are quite a number of springs differing from each other mainly in the temperature at which they emerge from the earth, the range being from 115 to 162 degrees, with but slight variation in the nature or quantity of their solid contents. It will be sufficient, therefore, to mention the analysis of the most prominent, the "Sprudel," one gallon (58,329 grains) of which contains 326 grains of solid ingredients as follow: Calcium carbonate, 18.012; ferrous carbonate, .205; lithium carbonate, .152; magnesium carbonate, 10.404; manganous carbonate, .045; sodium carbonate, 77.003; strontium carbonate, .053; sodium phosphate, .028; potassium sulphate, 8.446; sodium sulphate, 146.558; sodium bromid, .015; sodium chlorid, 60.610; sodium iodid, .001; calcium fluorid, .186; alumina, .129; silica, 4.385. Total, 326.232 grs.

There are no less than eight known mineral springs in the United States for which the term "Carlsbad" is chosen to at once demonstrate their superior efficiency. . . .

"*America's Carlsbad*," *the Bowden Lithia Springs*, are situated among the granite hills of Northern Georgia, four miles west of Atlanta, at an altitude of 1,200 feet above the sea, with a mild and dry climate, whose temperature "rarely reaches 90 degrees in summer or goes below 40 degrees in winter." There are several springs on the grounds, which are encased, and used only partly for drinking purposes. The rest of their waters are pumped into a reservoir, from which the bath-house is supplied. "For the company has secured a competent physician, who is familiar with Hot Springs, Ark., to introduce the famous Hot Springs system of bathing at Lithia Springs." There are other arrangements for the comfort and benefit of the guests. A great stress is laid upon the presence of lithia in the water, and on this account it is most strenuously recommended as the water which "has been proven to be nature's remedy for rheumatism, bladder and kidney diseases." . . . A United States gallon of the Bowden Springs water contains 138 grains of solid ingredients, as follow: Calcium bicarbonate, 14.372; ferrous bicarbonate, .179; lithium bicarbonate, 3.706; magnesium bicarbonate, 2.395; aluminum sulphate, .442; calcium sulphate, 10.127; potassium sulphate, 1.221; sodium sulphate, .693; strontium sulphate, 1.013; sodium chlorid, 101.482; magnesium chlorid, 1.442; silica, 1.052. It is plainly observed that chlorid of sodium is the predominating substance in this analysis, and a water holding as small an amount of alkalies among its solid ingredients can not be classified with an "alkaline-saline purgative water" like Carlsbad; it is a *saline water*. It appears now that neither the constituents of the springs nor the temperature of their waters bear any resemblance to the springs whose title has been assumed, but as it can not be presumed that the assumption has been wanton and without any cause, it may be surmised that the therapeutic effects from both have been such as to justify the Bowden Springs taking to themselves the name of the older, renowned watering-place.

The "*West Baden Mineral Springs*, the 'Carlsbad' of America" . . . are located on a tract of land nearly 700 acres in extent, where they are "surrounded by a series of majestic hills, under whose beautiful groves of noble forest trees the walks and grounds are sheltered." There are seven springs announced, which yield from 30 to 120 gallons per minute, and "this quantity is not perceptibly increased or diminished during the longest spells of wet or dry weather." It has a uniform temperature of 53 degrees F. during summer and winter, and "the quantity and temperature being uniform under all circumstances, gives a confidence, which experience in its use has verified, of its uniform strength and efficacy." . . . Although there are seven springs mentioned, the analyses of but four have been published, Nos. 1, 3, 5 and 7, of which the latter two have the largest amount of solid ingredients, 351 and 372 grains in one gallon, respectively. No 1 contains about 283 grains of solid matter. Below you find the analysis, by E. T. Cox, State Geologist, of No. 7, the largest spring in the valley. It contains, in one United States gallon, the following substances in grains: Calcium carbonate, 34.487; ferrous carbonate, 2.945; magnesium carbonate, 32.784; potassium carbonate, .635; sodium carbonate, 9.687; aluminum sulphate, 2.573; calcium sulphate, 86.011; magnesium sulphate, 43.798; potassium sulphate, .843; sodium sulphate, 28.857; calcium chlorid, 7.854; magnesium chlorid, 13.102; sodium chlorid, 108.318; total, 371.894 grs. The gaseous contents in one gallon are, in cubic inches: Carbolic acid, 8.296; nitric acid, 18.274; sulphuric acid, 4.205; oxygen, 6.147; sulphur. hydrogen, 9.987. According to this evidence, the water must be classed among the calcic waters with alkaline-saline properties, and should therefore be considered favorably in its comparison with Carlsbad water.

The "*American Carlsbad Springs*" are located at Nashville, Ill., . . . in altitude about 100 feet above St. Louis and 500 feet above the level of the sea. These so-called springs are actually artesian wells, which "after being bored yielded saline water in considerable abundance to warrant their commercial use." . . The temperature of the water is 65 degrees F. It has been analyzed by Dr. Chas. Ludeking of St. Louis and W. F. Hillebrand of the United States Geological Survey, and contains in one United States gallon 260 grains of the following mineral substances: Sodium chlorid, 10.0; sodium carbonate, 27.4; calcium sulphate, 65.8; magnesium sulphate, 103.7 sodium sulphate, 53.0. This analysis places the water in the class of purgative waters, allied to the Carlsbad by its sodium salts. . . .

"*The Colorado Carlsbad Mineral Water Springs*" are located four miles east of Barr, a station on the B. & M. R.R., eighteen miles from Denver. . . . Two analyses have been made of the water, which differ from each other by about 5 per cent., and also in the arrangement of the probable constituents; one is by Prof. S. A. Lattimore of Rochester, N.Y., and the other by Prof. Karl Langenbeck of Cincinnati. S. A. Lattimore found in one United States gallon, 111.2 grains: Calcium carbonate, 2.144 grains; calcium sulphate, 26.429 grains; magnesium sulphate, 10.764 grains; sodium sulphate, 61.108 grains; sodium chlorid, 10.734 grains. Karl Langenbeck found in one United States gallon, 116.8 grains: Calcium carbonate, 18.657 grains; magnesium carbonate, 3.393 grains; sodium carbonate, 2.318 grains; sodium sulphate, 82.984 grains; sodium chlorid, 9.476 grains. Traces of substances can not be taken into consideration.

Both of the analysts have accompanied their reports with statements of the therapeutic value of the water, and while Professor Lattimore satisfies himself with declaring that it "bears in its composition a striking resemblance to the well-known Carlsbad water of Bohemia," Professor Langenbeck is more enthusiastic and positive in calling it "a water exactly of the Carlsbad and Franzensbrunnen type, although about one-third the strength of these." In their comparison of the Colorado spring they have neglected entirely one and the most important factors, to-wit: the temperature.

"*Hot Springs, S. D., in the famous Black Hills.*"—Its principal ingredients are the sulphates of calcium, sodium and potassium, together 65 grains, while the balance is divided among some other calcium and magnesium salts.

The "*Las Vegas Hot Springs*" are situated about six miles from the old town of Las Vegas, N. M., at an altitude of 6,767 feet, where "some forty springs bubble out of the hillside, varying in temperature from ice cold to boiling hot, but most of them ranging from 110 to 144 degrees F." The analyses of some twenty odd of these springs were made as early as January, 1882, when the water was collected and the temperatures taken by Prof. J. T. Lovewell, Washburn College, Topeka, Kan. He determined the carbonates of calcium and sodium, sodium sulphate, sodium chlorid and silicic acid, and mentions small quantities of magnesium and potassium and traces of lithium. Like in other localities where a number of hot springs are found to issue, the individual springs differ mainly in their temperature, but not very much in their solid constituents, which in this case, vary a fraction of a grain only in 10,000 parts, while the sum total of each of the twenty odd springs as mentioned above amounts to an average of 33 grains in a United States gallon.

A small, neat pamphlet entitled "The Land of Sunshine" mentions the analysis of one spring made by Walter S. Haines, M.D., Professor of Chemistry, Rush Medical College, in 1895, which is here selected as a sample, because it exhibits more details of the solid ingredients, and allows a more easy comparison with other known analyses. The following are the solid contents of one gallon in grains: Calcium carbonate, .89 grains; magnesium carbonate, .15; potassium carbonate, .28; sodium carbonate, 8.38; sodium sulphate, 3.35; sodium chlorid, 14.68; silica, 3.50; alumina, .10; volatile and organic matter, .32. Total, 31.65 grains. In the remarks which accompany his report, Dr. Haines states "that in many respects the springs resemble in chemic composition the waters of the famous ones of Teplitz and Carlsbad," which is correct, when we take into consideration only the relative proportion of the ingredients to each other, but when we compare the quantities of solids of the two different localities, we find that the Carlsbad springs contain about ten times as much solid matter as the Las Vegas springs. Otherwise there is really

a great resemblance between the analyses of the two waters, and in the light of the recently advocated doctrine of flooding and washing out the system, the Las Vegas as ten times the weaker might be taken for ten times the superior. While the springs are surely the principal attraction of Las Vegas, there are other prominent features which ought to make it a decidedly delightful health resort. Its high elevation, its dry and uniform climate and its situation on a large tract of land which is surrounded by high hills that form almost a complete circle and protect the valley against the cold north winds, and especially the sand storms, the plague of these regions. The mean annual temperature is 59.07 degrees F.; during the summer it rarely rises above 90 degrees F. The rainfall is less than one inch during the same time, and about twelve inches during the whole year with an average number of 326 sunny days. The nights are always cool and a blanket comfortable even in summer. The Hot Springs of Arkansas also aspire to be classed among the competitors of Carlsbad. . . They are situated in 34 degrees 31 minutes N. latitude and 92 degrees 31 minutes W. longitude, at an elevation of 600 feet above the Gulf of Mexico. The climate is clear and beautiful, while the temperature rarely reaches an extreme in either direction, to render it uncomfortable. The sun passes down behind the west mountain early in the evening, giving a delightful long twilight and always insuring cool nights in summer. Its annual mean temperature is 76.67 degrees with lowest mean in January, 55.32 degrees, and highest in July, 95.48 degrees F. There are in all seventy-three springs which are discharged at a temperature from 77 to 157 degrees F. All of them have been neatly encased and their waters collected in one large reservoir, from which the hotels and the bath-houses are supplied with a daily output of 840,000 gallons. The water like that of many thermal springs carries in solution but a small quantity of solid ingredients. Prof. E. H. Larkin, in 1856, found eight and one-half grains to a gallon of water, which is still maintained as correct. He determined the proportion of its constituents, of which lime, silica and carbonic acid formed over 75 per cent. in almost equal quantities, the balance being alumina, iron, magnesia, soda, potash, chlorin and sulphuric acid to the amount of 15 per cent., and water and organic matter 10 per cent. It is obvious that if the quantity of solid constituents would decide the efficiency of a thermal spring, Hot Springs could not come into competition with Carlsbad and its 323 grains of solids in a gallon or about forty times the quantity of mineral ingredients. In all thermal waters, however, the natural high temperature is of the foremost importance, and should therefore be taken first into consideration. Thousands of sufferers stake their faith on Hot Springs every year, and have been rewarded for their confidence by being restored to health and activity. And it should always be remembered that if the high temperature be assisted by an almost absolutely pure water, its cleansing effect, whether it be employed for external or internal purposes, would be of the most intense quality. And if the dispensation of other medicines should be decided on, a purer menstruum could not be selected for their administration and even an artificial Carlsbad easily be prepared by the addition of the requisite substances. There is no doubt that the Hot Springs of Arkansas have the right to call themselves the "Carlsbad of America." *The Paraiso Hot Springs* are situated in California, 150 miles south of San Francisco, at an elevation of about 1,200 feet above the level of the sea, and nearly 1,000 feet above the valley. The temperature of the water is 118 degrees F., and the chief of its ingredients is sodium sulphate, although in decidedly less quantity than it occurs in the Carlsbad springs. However, a comparison of the analyses of the two springs makes it plain that there is a great similarity in the proportions of the active elements, and, therefore, we shall not antagonize the opinion of W. Anderson, M.D.: "This water is found to be very similar to the noted Carlsbad of Austria." According to his careful chemic analysis the water contains 61.45 grains in one U. S. gallon of the following mineral ingredients: Calcium carbonate, 1.30 grains; ferrous carbonate, .89; Magnesium, carbonate, .75; sodium carbonate, 5.06; calcium sulphate, 6.45; magnesium sulphate, 1.10; potassium sulphate, a trace; sodium sulphate 34.60; sodium chlorid, 3.37; potassium chlorid, .32; aluminum chlorid, .56; silica chlorid, 2.90; organic matter, 4.15. Total solids, 61.45.—Abstract of a paper by ENNO SANDER, M.D., in the *Medical Mirror*.

How We Feel When We Die.—In the *Review of Reviews* for September, 1892, is to be found an article bearing upon the above rather startling title, which is thus introduced to the readers of the magazine by its editor: "The July number of the 'Proceedings of the Society of Psychical Research' contains a paper of surpassing interest by Mr. T. W. H. Myers, . . . As it is appointed to all men to die, and as in the whole range of human literature there are hardly any authentic narratives as to how a man feels at the moment of death, the evidence in this paper is extremely interesting. Of the two narratives Mr. Myers gives us, the first is the most remarkable, although they are both exceedingly wonderful. The first was contributed by Dr. Wiltse of the *St. Louis Medical and Surgical Journal*. Dr. Wiltse is the authority for the statements which follow. . . . The second story is of a Huguenot minister, Bertrand by name. It is not so recent, but it is quite as remarkable in its way." Then follow the stories, which I shall give as briefly as possible, but verbatim. To begin with Dr. Wiltse's narrative: Dr. Wiltse "appeared to come to the moment of death in the last stage of typhus fever." He thus describes his experience: "I said to myself, 'I have died as men term death; I am about to get out of the body,' and I watched the interesting process of the separation of soul and body. By some power apparently my not own, the ego was rocked to and fro laterally, by which process its connection with the tissues was broken up. After a little time the lateral motion ceased and along the soles of the feet I felt and heard, as it seemed the snapping of innumerable small cords, when this was accomplished I began slowly to retreat from the feet toward the head. I remember saying to myself, 'now there is no life beyond the hips'; then, 'I am all in the head now and shall soon be free.' As I emerged from the head I distinctly recollect how I appeared to myself, something like a jelly-fish as regards form and color. I floated up and down like a soap bubble, until I broke loose from the body and fell lightly to the floor, where I slowly arose and expanded into the full stature of man. I seemed to be translucent and of a bluish color; as I neared the door I found myself clothed. I examined the fabric and judged it to be some kind of Scotch material, not handsome, I thought, but neat and good enough. . . . I discovered that a cord like the thread of a spider's web ran from my shoulders back to my old body, and was attached to it at the base of the neck. I stood and gazed at the couch I had just left and saw my own dead body. I noticed two women kneeling be my side, but had no conception of individuality; wife, sister or friend were as one to me. I could distinguish sex, but nothing further." He left the house and went out into the street, then he rose into the air, "upheld by a pair of hands," till he arrived at a narrow roadway, along which he walked for a while. At last he came to three great rocks barring the way, "and a voice spoke to him out of a cloud: 'Once you pass them you can no more return to the body.'" He desired to pass, but was stopped. He "became unconscious again, and when he awoke he was lying on his bed. He awoke to consciousness and soon recovered."

So much for the first story, now for the second. Pastor Bertrand was climbing a mountain with a party of students; feeling tired, he lay down to rest while the others proceeded, and was overtaken by "the sleep of the snow." He felt himself as if struck by apoplexy. His head was perfectly clear, but his body was powerless. He tells his story thus: "A kind of prayer was sent up, and then I resolved to study quietly the progress of death. . . . The sensation was not painful, but at last my head became unbearably cold, and it seemed to me that concave pincers squeezed my heart so as to extract my life. I never felt such pain, but it lasted only a minute and my life went out. 'Well,' thought I, 'I am what they call a dead man, and here I am, a captive balloon, attached to the earth by a kind of elastic string, and going up, and always up.' . . . When my companions return they will say, 'The Professor's dead!' They do not know I never was as alive as I am! The proof is, I see them now; the guide is stealing a leg of my chicken. 'Go on, old fellow, eat the whole if you choose, for I hope my corpse will never eat again! Hello, there is my wife going to Lucerne. Well, wife, good-bye!' I confess I did not call *dear* the one who has always been *very dear* to me. I felt neither regret nor joy at leaving her. My only regret was that I could not cut the string. Suddenly a shock stopped my ascension, I felt somebody was pulling the balloon down. My grief was measureless! When I reached my body I had a last hope, the balloon seemed much too big for the mouth. Sud-

denly I uttered the awful roar of a wild beast; the corpse swallowed the balloon and Bertrand was Bertrand again!" In other words, the exertions of his friends were successful in resuscitating him.

So much for the stories themselves, now for the comments of the *Review of Reviews:* "Both of these stories," it tells us, "agree in the consciousness of the apparently dead person that he exists apart from the body with which he was connected by a very fine line, the severance of which would complete the process of dying. . . . The moral of both seems to be that what we call dying is no more death than the changing of a suit of clothes is dying. . . . The ugly part of both stories is the comparative indifference with which the liberated soul regarded those whom it loved on earth. This, however, is so contrary both to experience and to reason, that it may be regarded as exceptional and due solely to the novelty of the situation, which in these cases had no time to pass before the process of dying was rudely interrupted."

Now I would ask: What "experience" is here meant? Not the ordinary experience of the living, surely, for that is quite beside the mark? And if, as the *Review of Reviews* tells us, the significance and importance of these narratives lie in their being almost the *only* revelations we have of the condition of the soul *after* leaving the body, it seems hardly consistent to accept the statements of the narrators as authoritative on some points, yet attempt to explain them away on others. Why, for example, should we be willing to believe on Dr. Wiltse's authority that the soul as it first emerges from the brain is "of the color and consistency of a jelly-fish," yet refuse to belive, on the same authority, that it no longer loves or even recognizes those dear to it in life? more especially, as this loss of natural affection is testified to by both of our witnesses. Indeed, this fact and the existence of some kind of elastic connecting cord between the almost liberated soul and its cast off body, are the only two points in which their experiences are identical. As regards the character of these revelations, they are as singularly devoid of dignity and weight as the "revelations" vouchsafed by so-called "spirits" at a "séance." The idea of a "disembodied soul" keeping watch upon a thievish guide in his appropriation of a chicken-leg certainly strikes one with a sense of incongruity, while the conception of such a soul habited in "a suit of some Scotch material" is so grotesque that the gruesomeness of the situation is altogether lost sight of in its absurdity! Indeed, there is a purely mundane tone about these experiences throughout, which stamps them as being emphatically "of the earth earthy."

The absolute accuracy of the stories, so far as they relate what the narrators believe to be their actual experiences, I shall not call in question; taking it for granted that they have been thoroughly sifted and authenticated before being presented as "facts" to the readers of the *Review of Reviews*. I must, however, express my surprise at the importance attached to them by that periodical. To me, they appear to belong precisely to the same category as those wonderful experiences related by patients who have recovered from a cataleptic trance, or to the stories told by drowning persons. They are undoubtedly very curious and exceedingly interesting, as, from the nature of the case, evidence of the sort must always be most difficult to secure, for even in those cases where disease has left the mind unimpaired, death is in most instances preceded by unconsciousness. Were it possible to collect sufficient data on the subject, the physiologist might be enabled to trace the underlying law governing the physical phenomena of death, and discover that certain differences of sensation mark the approach of death in different forms. Such knowledge, from a scientific point of view, would of course be most interesting. Had the article in question borne the title: "How we feel when we come as near death as we can come *without* dying," it would exactly have described the subject-matter; but its actual title "How we feel *when* we die," is, I maintain, a misnomer. Still, as I have said, these experiences are of value (always supposing them to be well-authenticated facts), but I utterly fail to see their importance as bearing upon the elucidation of the problem of "death." For death, as I understand it, is the absolute extinction of animal life; the utter and complete severance of the bond between the material and the immaterial parts of the nature. So long as one spark of vitality remains, so long as the potentiality of life exists, it is not death, but only a more or less near approach *to* death. And the nearest approach to death is not death. The *consummation* of the act of dying *alone* is death! Hence it is that, so far as penetrating the mystery of death is concerned, these "experiences," with all their interest, leave us precisely where they find us—profoundly in the dark!—Abstract from *Review of Reviews*, by H. E. BEHN.

PRACTICAL NOTES.

Etiology of Catarrh of the Upper Air-passages.—A writer in a Russian exchange mentions the universality of this affection, and emphasizes the resulting evils, especially in the young. He ascribes it largely to the fact that the mucous membranes are not supplied with the moisture required to keep them in normal activity, as soon as the weather compels us to heat our houses. The air is heated to a point when it would hold considerable moisture normally, but the little moisture in the cold outer air is dried out of it by the time it reaches our nostrils indoors.—*St. Pet. Med. Woch.*, October 23.

The Milk Diet in Kidney Lesions.—Dr. Ajello (*Blätter für Klinische Hydro-Therapie*) as quoted by the *Philadelphia Medical and Surgical Reporter*, does not believe that the milk diet is best for kidney lesion patients, but that, on the contrary, a "mixed" diet answers a better purpose in general. In his twenty-one cases he noted an increase in the quantity of urine in nine that were kept on a milk diet and eleven on a mixed diet. The albumin decreased in five cases and increased (quite considerably in some) in sixteen cases kept on milk. The urates diminished in ten milk cases, a rather unfavorable phenomenon. The phosphates diminished in seven kept on milk and thirteen on mixed diet.

The Action of X-Rays on Micro-organisms.—Bonomo and Gros have made researches in the military hospitals at Rome on this subject. They subjected cultures of various micro-organisms (B. subtilis, B. tuberculosis, B. anthracis and others) up to the third generation to the influence of the X-rays, applied vertically, for a period of about three hours each day. Some retardation or diminution of vitality, vegetative and pathogenic, was observed in every case; but the change was for the most part very slight except in the case of B. anthracis. With this microbe a well-marked diminution in motor activity, modification of chromogenic power and loss of spore-producing property was observed. With this, too, a complete attenuation of pathogenic effects was observed, so that the authors feel it might be possible through successful cultures exposed to the X-rays to make the B. anthracis innocuous. No such marked results were obtained with the other micro-organisms under the influence of the same rays. In every case such effects as were observed were more noticeable in the later than in the earlier cultures.—*British Medical Journal.*

A Pipe-stem Impacted in a Bronchus for Three Months.—The tolerance of the bronchi for large foreign bodies is well exemplified by the report by Francis (*British Medical Journal*, Sept. 25, 1897, p. 809) of a case in which a portion of pipe-stem was impacted in the left bronchus for a space of three months. The patient was an army pensioner, who related that about a month before coming under observation, while standing quietly on the street smoking a briar pipe with a vulcanite stem, he was seized with a fainting fit and fell. On being raised from the ground by bystanders and recovering consciousness, he looked about for his pipe, but found that the shank was broken about an inch from the mouthpiece. The broken fragment could not be found and the man proceeded home, feeling little the worse for his accident. From this date he complained of pain more or less severe in the left breast with dyspnea on exertion and profuse mucopurulent expectoration. On examination there were heard a light systolic murmur and loud rhonchi all over the chest, which was hyperresonant. A belladonna plaster and a stimulating expectorating mixture were prescribed. A short time afterward, while carrying a heavy weight about a hundred yards in a stooping posture, the man suddenly felt something move inside his chest and following a fit of coughing the long-lost pipe-shank dropped out of his mouth to the ground surrounded by a little coagulated blood and inspissated mucus, with immediate relief from the previous embarrassment of breathing. The piece of pipe-shank measured one and one-fourth by one-half inch, and must have been lodged low down in the left bronchus.

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SATURDAY, DECEMBER 18, 1897.

THE FREQUENCY OF DIABETES MELLITUS, AND ITS RELATION TO DISEASES OF THE PANCREAS.

There are a number of features in connection with the general frequency of diabetes mellitus, as well as with its occurrence in certain races and in certain classes that merit particular attention. Thus, for instance, it appears that the general frequency of this disease is steadily increasing, both in the United States and in the European countries, although the disease is as yet, at any rate, much less prevalent here than across the Atlantic.

The statistics of SAUNDBY[1] show that the mortality in the United States in 1870 was 2.1 to the one hundred thousand population; whereas in 1890 the death rate was 3.8 per hundred thousand. Now, these statistics show that diabetes in this country is gradually on the increase.

HARE,[2] in recently published statistics, also demonstrates that the frequency is on the increase. He points out that in thirty years, from 1850 to 1880, the mortality from diabetes in this country increased 150 per cent. in every hundred thousand deaths.

In Europe the mortality ranges between 5 and 9 to the hundred thousand. In the Island of Malta, where the mortality from diabetes is extraordinarily high, the census of 1891 showed a death rate of 13.1 to the hundred thousand. In Paris the death rate is gradually increasing during the last three or four decades, and in 1891 it reached 14 to the hundred thousand.

In the Johns Hopkins Hospital of Baltimore there have been treated, according to THOMAS B. FUTCHER,[3] in all sixty-nine cases of diabetes mellitus, in the ordinary acceptance of the term in the medical wards and the medical section of the dispensary during the last eight years. During these eight years 45,636 medical cases have passed through the wards and the out-patient department, so that the diabetic cases comprise only .15 per cent. of all the medical cases.

It is well known that some races are especially liable to diabetes. Hebrews are especially susceptible, one-fourth of FRERICHS'S cases being of the Semitic race. It is rare in negroes and Africans, and the Mongolian races are rarely affected in their own countries. Chinese are comparatively exempt. In the colored races the disease is apparently rare; TYSON[4] has seen several cases, and of the sixty-nine cases of diabetes treated in the Johns Hopkins Hospital five were negroes.

The prevalent belief that persons living in the country are more exempt from diabetes than inhabitants of cities can not be traced back to any definite statistics; on the other hand, SAUNDBY[1] shows that for many of the counties of England this discrepancy does not exist.

The above statements, taken for the most part from FUTCHER'S article, indicate that the distribution of diabetes is very unequal. The same is also observed with reference to its occurrence among the various classes of people; thus wealth and culture are said to increase the liability to diabetes ten-fold. Statistics for London and Berlin show that the number of cases in the upper ten thousand exceeds the number of cases in the lower hundred thousand inhabitants. The same occurs in India, where the disease is much more frequent in the educated upper class than in the ignorant lower class.

In recent years great interest has been created in the part played by the pancreas in the causation of diabetes. For more than a century, however, it has been recognized that lesions of the pancreas may cause diabetes. In 1788 CAWLEY[5] reported a case in which the pancreas was atrophic and contained calculi, but it was not until 1877 that LANCEREAUX[5] described a special form of diabetes under the name of *diabète pancréatique*, associated with lesions of the pancreas. He stated that this variety was characterized by suddeness of onset, unusual malignancy and rapidly progressing emaciation, and a special tendency toward tuberculosis of the lungs as a complication. BAUMEL,[5] in 1882, advanced the view that all the cases of diabetes were due to the absence of a diastatic pancreatic ferment in the intestine, and he was the first to claim that pancreatic disease was the regular cause of diabetes. These observations seemed to leave no lasting impression until the discovery by MINKOWSKI and VON MERING that permanent diabetes mellitus could be produced experimentally in animals by complete removal of the pan-

1 Lectures on Renal and Urinary Diseases, 1896.
2 Medical News, 1897.
3 New York Medical Journal, Dec. 4, 1897.
4 Practice of Medicine, 1896.
5 Quoted by Futcher, loc. cit.

creas, and it is now generally recognized that diseases of the pancreas are responsible for a certain number of cases of diabetes. There are some who claim that all cases of diabetes are due to pancreatic disease, maintaining that where there are no structural lesions, gross or minute, then there exists a functional disturbance of the gland; but there are others who believe there is no association between diabetes and changes in the pancreas. HANSEMANN[6] analyzed the cases of diabetes which came to autopsy in the Berlin Pathological Institute during ten years, and the results follow:

1. Diabetes without changes in the pancreas, eight cases.

2. Diabetes without any information regarding the pancreas, six cases.

3. Diabetes with pancreatic disease, forty cases.

4. Pancreatic disease without diabetes, nineteen cases.

Of the forty cases in which the pancreas was affected, thirty-six presented atrophy, three fibrous induration of the organ, and one was a case of cyst of the pancreas.

WILLIAMSON[7] has examined the pancreas in twenty-three consecutive cases of diabetes, and in only twelve was the pancreas normal. He also analyzed 100 cases of pancreatic lesions in diabetes, which he collected from the literature and found that in forty-eight it concerned essentially atrophic changes; in seventeen it concerned fatty degeneration; in seven, cystic transformation; in fourteen, chronic fibrous changes; in two, hemorrhagic pancreatitis; in three, suppurative pancreatitis; in eight, carcinoma of the pancreas, and in one, calculi were present.

In connection with this it is of interest to note that LEPINE[8] maintains that the pancreas produces an active glycolytic ferment, which enters the blood and chyle and destroys a large part of the sugar before it reaches the liver, and that this ferment is absent, or greatly reduced in animals whose pancreas has been extirpated. More abundant evidence, however, seems to be required, according to FUTCHER, before this view can be fully accepted.

THE POLITICAL RESPONSIBILITY OF THE PHYSICIAN.

On various occasions heretofore the JOURNAL has endeavored to impress upon the members of the medical profession the utility and need of their taking a more active part in the government of this country, both as regards National and municipal affairs. The subject is one, however, that is not exhaustible by one or a few editorial utterances, and it is one that in some one of its many aspects is always demanding consideration. While the secular and religious papers are continually demanding the co-operation of good citizens in political affairs to prevent their being controlled, as is too often the case, by the bad citizens, it is certainly not out of place for medical journals to call the attention of its readers from time to time to their responsibilities in this matter. This is the more justifiable and necessary from the fact that heretofore we have as a profession neglected our opportunities and sinned away our mercies, to use an old Scotch expression, far more than we can reasonably excuse ourselves for, and have suffered in consequence. Professional self-respect has not been preserved by this abstention from public affairs to any extent at all comparable to the damage it has received by the education of the public through our neglect, to consider all so-called professors of the healing art, quacks and charlatans of every kind, as equally deserving of popular favor and legal countenance with the educated and conscientious physician. Recent legislation and legal decisions in various parts of our country are witness to this fact.

The duty of our profession to itself has been already editorially pointed out in this journal, and is only reiterated here to keep up the interest in the reform that is needed. It has also been pointed out that we owe a duty to our fellows and that of all men the physician is his brother's keeper, and his responsibility as a citizen and voter is correspondingly heightened. As individuals we feel this responsibility, but as a collective body we are apt to be remiss and forgetful in this regard, and evils that we could prevent are allowed full play. The interest of a physician in good government is something more than that of merely a good citizen; he is himself a guardian of the public in their nearest and dearest relations, and as such he has it as his duty to do all in his power to protect his charge from all evil legislation or vicious maladministration of salutary laws. In the matter of direct sanitation alone, the value of medical knowledge in the forming and execution of the laws and municipal regulations, ought to be sufficiently evident to require no demonstration. A writer in a recent issue of a religious journal calls attention to the fact that the gradual reduction of the rate of mortality in New York City from 25.18 to 20 in the last three years saved 3,758 lives in 1895, 7,736 in 1896 and 9,920 in 1897, a total of 21,414 lives, due to better government and closer attention to sanitation. If such a saving of human life can occur in one case it can in others, and if it is to be brought about elsewhere, or generally, it will have to be through the co-operation of enlightened medical opinion acting on official ignorance and stupidity. So-called practical politicians are too generally ignorant and indifferent in regard to these matters, and the community as a whole can act intelligently only under medical supervision and advice. A sanitary issue is almost, if not

[6] Zeitschrift f. kl. Medicin, 1894.
[7] Med. Chronicle, May, 1897.
[8] Quoted by Futcher, loc. cit.

altogether, an unknown thing in our politics, and when it occurs it is handled, as a rule, along party lines and with all the disadvantages that such a course involves. Our legislatures are made up of lawyers and professional politicians without other visible means of support, together with a sprinkling of farmers and others who, though well meaning and generally honest, are apt to be prejudiced and misled on all matters that are without the limited range of their knowledge. If there are any physicians they are few in number and, as a rule, have not the influence that they should exert, even in matters that fall directly within their professional sphere, and in regard to which they should have a predominant voice. In Congress, as regards this special point of view, matters are no better; there has been, since RUSH'S time, no really eminent medical man amongst our National legislators—we have no VIRCHOW or VERGA in our Senate or House of Represenatives. In the French Chamber of Deputies, there have generally been a number of physicians, and while the leading parts that some of them have taken may not have always reflected the most credit upon them, in medical questions they have often combined, and we do not hear of their inactivity when unintelligent legislation on medical and sanitary matters is proposed. The debates on medical matters in the British Parliament are of enough interest to be reported in British medical journals, and legislation in these matters is not left uninfluenced by professional action and information.

There is no reason why these conditions should not be attained in this country nor why, in our State legislatures especially, there should not be a working representation of the medical profession, who in all matters involving their special professional knowledge and the public health, should act together for the best interests of the community without regard to party lines. Were this the case we might expect a beneficial reaction upon the profession itself; there would be less recognition of quackery and more appreciation of genuine scientific medicine on the part of politicians and the public, and with this a more satfactory status socially as well as politically. It would be a public benefit if we could have a few high-minded and able physicians to take part in National, State and municipal legislation in this country.

It is true that not every physician is fit to be a legislator and there are few probably that can afford it, and it is also true that some medical politicians have not been creditable representatives of their honorable profession. This, however, does not alter the facts we have stated, and further it does not at all affect the general question of the propriety of medical men recognizing their individual and collective responsibility as citizens, enlarged as it is by their special qualifications to judge and act in so many important matters affecting the public welfare.

MILITARY SURGEONS.

What's in a name?

This much: that the medical man of the military establishment has had his professional office limited in the popular mind to one, and that not the most important of his functions. As a "surgeon" he is supposed to lop off the limbs that the high intelligence directing the enemy's guns, and sometimes his own, has shattered, and, *ergo*, an amputating knife rather than a sword should be his distinctive badge of office; and *ergo*, again, a man whose badge is this has no fellowship in the military hierarchy.

The medical men of the military services have not acquiesced in this reasoning, but having been the under dogs in the fight, they have had to suffer and try to get strong, and the time has apparently come when they are strong enough to assert themselves and claim for their commissions the recognition and distinction merited by loyal service to the State from men of masterful acquirements in a profession requiring the highest order of ability—the very cornerstone of the military organization, without which the whole fabric would tumble to pieces.

The gun is useless without "the man behind the gun," and he is able and strong and intelligent as the military medical officer is empowered to select, domicile, feed, clothe and protect him from enemies within, as well as from those without, and when, rare event in his life, he may be disabled by hostile weapons, to repair and rehabilitate him.

The military surgeon is also military physician and especially military sanitarian. His forethought pervades the camp and ship, the regiment and fleet. Without him there can be no organized army and no disciplined navy. The military engineer may plan battles, the ordnance expert provide guns and ammunition, the steam engineer build mighty engines, and admirals and commodores, generals and colonels fulminate orders, but the blood and brawn and brains that are to fight the battles, operate the guns and animate the vessels are due to the professional prescience of the military medical officer, colleague and co-equal of the others.

The handsome volume of "Proceedings of the Seventh Annual Meeting of the Association of Military Surgeons of the United States," held at Columbus, Ohio, May 25–27, 1897, which has just been issued, demonstrates the manifold functions of the military medical officer. The papers contributed, without concert and on random topics, by officers of the Army, Navy and National Guard, from all parts of the country, have naturally fallen under certain heads, under which they have been appropriately grouped by the secretary-editor, Captain JAMES E. PILCHER of the United States Army, and these need only be enumerated to show the wide range of the medical officer's province: naval medicine, surgery and hygiene; mili-

tary personal identification; clothing and accoutrements; military physical training; the proper type of the military medical officer; sanitary work among troops; transportation of the disabled; medical service in the field; the service of aid to the disabled; military surgery; military medicine; military medical problems, etc. The address of the President of the Association, Medical Director GIHON of the United States Navy, on "The Status of the Medical Officer in the Military and Naval Establishment," in terms lucid and unmistakable in intent, defines the place among military men to which these officers are entitled. By a happy coincidence the address in surgery at the sixty-fifth annual meeting of the British Medical Association, held at Montreal, Canada, September, 1897, by W. MITCHELL BANKS, M.D. Edin., on "The Surgeon of Old in War," in the words of the speaker, set forth "some of the most notable work done of old by a body of members of our profession, who have never received their due reward." After brief notices of Roman military and naval surgeons, of AMBROISE PARE, ROBERT CLOWES, PETER LOWE, JOHN WOODALL, RICHARD WISEMAN, and Baron LARREY, of whom Napoleon wrote in his will made at St. Helena: "I bequeath to the Surgeon-in-Chief of the French Army, LARREY, 100,000 francs. He is the most virtuous man I have ever known." Dr. BANKS referred to that enemy which assails fleets and armies, and against which only the medical officer is competent to lead and combat, "the pestilence more deadly than the sword," by which in the naval battles of the Seven Years' War as stated in the "Annual Register" for 1763, "it appeared there were but 1,512 sailors and marines killed, while 133,738 had died of disease or were missing." After narrating instances of conspicuous military courage on the battle-field in recent years by medical officers, who have been contemptuously designated "non-combatants," "brave civilians" and the like, Dr. BANKS stated, "of the 118 wearers of the Victoria Cross, fourteen are surgeons, nearly 12 per cent. of the whole number and in the proportion of 9.5 per cent. of all the officers of the army." Despite all this, he concluded, "today Her Majesty's government can not induce candidates to come forward for the medical service of the Queen's army. And why? Because it has persistently treated the army medical department meanly and shabbily." Qualified medical graduates will not enter the British army, because the medical officer is not accorded the same status as to pay and precedence as officers of other corps. A similar reluctance to enter the medical department of our own Navy is indicated in the "Annual Report of the Acting Chief of the Bureau of Medicine and Surgery," just received, who states that there are "fifteen vacancies at the present time, nor does there appear to be any immediate prospect toward filling the corps."

It is not strange that civilians can not understand why, especially under a republican government, unfounded claims of inherent superiority of any one branch should operate to the extent of impairing the efficiency of the actual service. In fact, there is no tenable reason why there should be any lack of harmony in the composite organizations called the army and navy, in which each corps has well-defined equivalent duties, alike honorable and distinctive. The gist of Dr. GIHON'S presidential address was a definition of the terms *grade*, *rank* and *title*, which indicates a seemingly practical basis of settlement of the vexed question of rank and precedence. "*Grade*," he says, "is that something the law has conferred upon all commissioned officers, which serves to show each officer's place, position or status in a military organization." Grades are the steps, one above another, upon which the entire body of officers is grouped, irrespective of their special duties. *Rank* means simply seniority or precedence in the several grades, and depends solely upon the date of the officer's commission; thus one officer ranks another in his own grade. Grades are generic distinctions, and are practically the same all over the world. Rank is the relation of the individual officer to others of the same grade and naturally as well to those of other grades, so that in fact no two officers of the same service can have absolutely the same rank. Properly there is no name for rank, but custom has led to the identification of the name of the grade as rank. *Title*, the third of the terms used in the designation of officers, is the specific definition of their particular duties. Thus, surgeon-general in the army is the distinctive title by which an officer of the grade of brigadier general, who belongs to the medical department, is distinguished from brigadier generals of other departments. It is not desired nor would it be expedient, that specific corps titles should be abolished. Major SMITH of the medical department does not wish to be confounded with Major SMITH of the artillery, while he does wish it distinctly understood and admitted that he is as much a major in dignity, privilege and precedence as any other major. And herein lies the solution of the lamentable disputes which have estranged the staff, and it is, of course, the medical staff with which we have concern, and the line. Let the fact be distinctly understood that the military surgeon is not a mere make-believe soldier, an imitation officer, parading in borrowed plumes, seeking to hide his professional identity under distinctively military titles, nor that he is accorded by courtesy a quasi-status in military life to which in strict justice he has no legitimate claim. The honor and dignity of the profession of medicine require this and make it the duty of every physician in the United States to demand that the just recognition of the equivalent importance of military medicine, surgery and hygiene shall be made in the statutes, and this done, the Congress will be relieved of the importuni-

ties of those who charge on the one hand staff assumptions, and on the other line persecutions. When one or the other trenches upon statutory enactments, it is easy enough to punish the infraction. Physicians are law-abiding men, and it is certain that the military lawbreaker will find no more sympathy among his civil confrères than other offenders, but it will not do to assert that because a man is a "doctor," he and his field of work are not as honorable, as important, as responsible and as indispensable as those of other vocations inside or outside the military service. In our army, at least, if not in the British, the question is practically settled. In the rearrangement of the navy, it is hoped that the officers of the medical corps shall be placed on precisely the same footing as those of the army, in pay, privilege and precedence. If this be done, we predict there will be five applicants for every one of the fifteen vacancies which the chief of the medical bureau now laments.

PROFESSORS.

"I want a professor," cries the patient, and the ordinary every-day doctor who has no title must obey and call in consultation "Herr Professor." Of course, the patient does not know how professors are created; he does not know that any half dozen "scrubs" can start a medical school and dub themselves professors; he can have no knowledge of medical politics as they really are and therefore he insists on having a professor.

To the patient a professor means one who by years of study and experience has made himself so proficient in his special line that his fellow practitioners have deemed him worthy of appointment as a teacher and adviser. True, often a man has served a long apprenticeship as instructor, assistant, demonstrator, adjunct professor, etc., before he attains to the title of professor; but, too often, it is the man with the most "pull" who "gets there," the man who can obtain the best endowments for the college who is created professor over and above the faithful quiz-masters, privatdocents and clinical instructors.

About every large medical school is clustered a small army of assistants waiting for promotion, lobbying like ordinary politicians whenever a vacancy occurs, and as servile to those above them as a fourth-rate postmaster to his Senator.

What is there in the title of professor, that makes it so much to be desired?

It can not be altogether honor, since neither wisdom nor great deeds are necessary to attain to it; the unworthy are as often made recipients of this "honor" as the worthy. It is not the salary usually connected with the office, since we know that many professors go so far as to endow their own chairs, and many others are at considerable outlay in keeping up their positions, and some have actually bought their professorships. We fear that quite a number are moved to compete for a professorship because indirectly there is money in it. A professor can command larger fees, because the layman thinks he has superior knowledge, and for the same reason those who can afford it prefer to visit the professors.

Certainly this can not apply to the teachers in such subjects as chemistry, pathology, anatomy and physiology, and most often there is some salary connected with these positions to compensate the incumbent. Indeed, in some schools the professors of so-called "practical" branches forego their own salaries for the sake of supporting these professorships. There was a time when medical colleges had only six or seven professors in their faculty; today the average is twenty-five. In one large Eastern city 7 per cent. of the medical profession have professorships in the colleges, and a great many more occupy positions as instructors and demonstrators.

But any one can become a professor of any subject providing he has the proper amount of influence. If no vacancy exists a new chair is created for his benefit. It does not matter whether he can teach or not; that is a minor consideration. All he needs to do is to compile a text-book, tell the students to buy it, and require daily recitations from this book. A book is very easily compiled; buy a few German and French books, translate them, or ask others to run over two or three late English and American books, get plenty of illustrations, change a word here and there and the book is complete. If the publisher own a medical journal, favorable reviews and plenty of advertising finishes the job, and the title of professor helps to sell the compound.

The publishers have not been slow to perceive this source of revenue, and by concentrating in one volume the products of many professors they produce a "text-book" which must be sold in many schools. No matter what the quality of the material, the profits are larger in this way, and the risk is nothing, for the student must buy this syndicate text-book *nolens volens*.

It is not always the men who compile books and occupy professorships who are the most learned or best trained physicians; and it is the great mistake of the medical profession that they put too much trust and faith in the words of men who possess such titles because they possess them. The character and standing of the school where he is professor should be taken into account. The ordinary medical man is too ready to advise his patient to go to some professor, instead of consulting with some honest, well balanced fellow practitioner.

In every city are earnest, studious and efficient medical men who do excellent work, and yet are but little known to the world at large because they do not *advertise*. Advertise is the word. They do not hang about the college waiting for a stray case, they are not

given to writing about wonderful cures obtained from strange remedies and reading reviews of other people's work before societies. They are not to be found in dispensaries, misunderstanding the poor patients who go there to receive relief, and because they do not do these things they are not invited to fill college chairs. But they are known to their patients, of whom they frequently possess more than many so-called professors. They are the men who keep alive the ethical spirit of medicine. They keep abreast of the times, even if they are silent. They are doing the heavy work, and the results they obtain, often amidst most unfavorable circumstances, are amazing. A time is coming when men who are prominent in the profession will not covet the title of professor, a time perhaps when the teaching of medicine will be a specialty in itself, and not merely a dodge to acquire practice.

When no medical schools shall be founded until there is need for it, and when all will put themselves on a scientific basis and look about them for teachers, for men who are qualified to instruct, the title of professor may have a real meaning, which at present it too often lacks. Let the general practitioner call the specialist to his aid because he is a specialist, and not because he is a professor.

CORRESPONDENCE.

Leprosy in Norway.

VIENNA, AUSTRIA, Nov. 12, 1897.

To the Editor:—I was much surprised while visiting Norway during the last summer, to find that among a population of less than two million people, there existed three special hospitals for the confinement and treatment of lepers, and that in these institutions were domiciled over one thousand unfortunates, afflicted with this terrible disease.

By far the largest of these institutions is situated at Bergen, and while there I availed myself of the opportunity to visit it. The superintendent, Dr. Hansen, was away on a vacation, but his first assistant received me cordially, and answered all my queries in the politest manner possible.

Naturally, where a fish diet forms so large a part of the food of the population of this country, one asks the question whether this may not act as a strong causative factor in the production of the disease. I was told that this was not the opinion held by those most competent to judge; but that it was probably on account of the small, unhealthy and crowded habitations that the people occupy during the long cold winters in this rigorous climate, that the disease had gotten such a foothold.

Speaking to my host in a congratulatory tone of our almost entire exception from the disease in the United States, he answered me warmly and decidedly, saying: You have plenty of lepers in your country, but your physicians do not recognize the disease, and allow the patients to run at large, while here in Norway we diagnose the malady in its early stages and isolate the patients.

In a late visit of Dr. Hansen to the United States, he told me that the Doctor found three cases in the hospitals in Chicago, and twice as many in New York, as well as encountered several cases of true leprosy upon the streets of each city, all of whom were being treated for lupus, syphilis or some other form of skin disease. I asked why the disease did not spread if we allowed lepers to run at large. "Because," he replied, "where the hygienic conditions are favorable the disease is only very slightly contagious. None of the attendants in this hospital ever contracted the disease."

To fortify his position, the Doctor had me examine several cases where the disease only involved the skin, and asked me if these cases had consulted me at home, if I would have recognized the disease as leprosy; and I had to acknowledge that I would not have been able to have made a correct diagnosis if his was a correct one.

I have related this interview to a number of American physicians and all of them, except Dr. Moyer of Chicago, poohed at the idea what we could not correctly diagnose a case of leprosy. The latter related to me the case of a boy whom he used in his clinic to illustrate what he supposed to be one of syringomyelia, but which on further investigation he found to be one of true leprosy.

Medicine in Scandinavia.—Everywhere in Norway and in Sweden I find, both in medicine and surgery, everything to savor of a most distinctly German type. The physician speaks German, his medical books are largely German, and his surgical technique is often the fashion that one sees carried out in Berlin and Vienna.

Small children in Norway have a habit, it seems, of drinking a strong alkaline solution that their mothers use in washing clothes. This is likely to be followed by a stricture of the esophagus. I saw a case operated on in Christiania for the relief of this trouble, and there were two more cases under treatment for the same difficulty in the same hospital. If the case be a bad one a gastrotomy is first done, the walls of the stomach are united with the parietes of the abdominal walls, so that an external gastric fistula remains. A piece of rubber cord of suitable size has sewed to each end a thin piece of tape, so that when pulled upon, the rubber cord has a much smaller diameter than when not upon the stretch. A small bougie is fastened to one of these cords and is passed, via the esophagus, down through the stomach and out at the fistulous opening in the stomach. The rubber cord, now being put upon the stretch by means of the two pieces of tape, is drawn down into the esophagus in a condition where its caliber is greatly reduced. The traction upon the cords is now loosened and the rubber cord assumes its original size and thus expands the restricted esophageal tube. These rubber dilators are changed every three or four days, a larger one being used each time.

The patient is nourished for the first few days, per rectum, and after that through the gastric fistula. At Christiania I saw a number of cases of prostatic enlargement treated by a super-pubic cystotomy, and permanent drainage of the bladder through this incision.

The surgeon has devised an ingenious appliance for the after management of these cases, which allows the urine to pass off into a rubber bag, with little inconvenience to the patient and allowing him at the same time to be on his feet without being annoyed by being wet from the urine as it passes off.

At Odessa in Russia, I met Dr. Mariachell, a bright man who devotes his entire attention to the diseases of the male genito-urinary organs. He is one of the surgeons of the general hospital in that city, and has an abundance of material at his disposal. He tells me he has castrated fourteen times and operated on the vas deferens thirteen times for enlarged prostate, with the result of benefiting none of his patients, and sending two victims to the insane asylum as a result of his interference.

He is bitterly opposed to the operation and says that the benefit surgeons claim to derive from it is only temporary in character, and is brought about solely by the patients being confined for a time in a horizontal position.

I was surprised to find on the table in the reading room of the general hospital at Odessa the latest medical journals in a half dozen different languages, and a set of men who seemed in all medical matters to be fully up to date.

To physicians who visit Sweden I can most warmly recommend that a few days be spent in the hospitals of the modern and thriving city of Stockholm, especially if you have some knowledge of German. Prof. Akermann, I believe, is one of the brightest men for his years I have ever heard teach or seen operate as a surgeon. Dr. Josephson does a large amount of abdominal work and is a great advocate of using buried silk sutures in closing up abdominal wounds, thus, he believes, avoiding the hernias that often follow these operations.

The surgeons here (I found the same thing in several other places) have abandoned catgut as a ligature, and are using fine silk in its stead, claiming that thereby they avoid suppuration and, if the silk used be fine, that it is absorbed without the manifestation of any local irritation.

Everywhere in Scotland, in Scandinavia, in Russia, in Turkey, in Greece and in Austria, I have found typhoid prevalent, and have been trying to do some missionary work as a Woodbridgeite, with what success I will tell the readers of the JOURNAL in my next. W. S. CALDWELL, M.D.

The Leprosy Question.

Translated from the French in *Janus* (July and August, 1897).

COPENHAGEN, June 26, 1897.

To the Editor (of Janus):—I see today with a certain displeasure that three of the publications, as numerous as they are little important, of Dr. Albert S. Ashmead, have been inserted in the sixth issue of your paper (May and June).

One of these publications, that entitled "Leprosy Overcome by Isolation in the Middle Ages," is absolutely useless. The author is pleased in this to attribute to me an opinion which I have never professed, *vide*, that the isolation of the lepers would be useless. *One will never find that opinion expressed in my works.* I am for isolation according to the Norwegian system, that is, the isolation of the diseased, who are incapable of taking care of and supporting themselves, and whose presence among other persons constitutes a real danger for the well. But I am not an admirer of the barbarians of the Middle Ages, who burned and imprisoned with horrible ceremonies the poor lepers, separating them from their families and their friends.

I know that Mr. Ashmead fights *for the wholesale isolation of the lepers* (even the 100,000 lepers in the English Indies), but I have the firm conviction that he will remain isolated himself with such a demand. The hygiene of our days does not act in the same manner as that of the Middle Ages.

Will you "kindly" ask Mr. Ashmead to quote in future the passages from my writings to which he refers, in order to avoid writing perfectly useless notes and attributing to me opinions which I do not have. I avail myself of this same occasion to interdict him, the copying without quotation of source, of photographs of my Icelandic lepers. These photographs were mine. I paid for them with two voyages, both perilous and disagreeable. Mr. Ashmead has inserted one of my photographs on the third page of his last pamphlet in the *Magazine of Medicine*, April, 1897, where he publishes, always without authorization of the correspondents, a number of letters, of which his own contains trifles, without interest, and also rude abuse of the leprologists of London, of Asmauer Hansen and myself. You will no doubt excuse me if I wish no longer to dispute with Mr. Ashmead, agree, Mr. Editor, the assurance of my perfect consideration. DR. EHLERS.

NEW YORK, DEC. 6, 1897.

To the Editor of Janus, Amsterdam, Netherlands.—Dr. Ehlers says (*Janus*, July and August) I attribute to him opinions which he never professed.

Whether or not Dr. Ehlers stands for isolation was not the point at issue; it was, should isolation as a principle be promulgated by the Berlin Lepra-Conference? That was the important question. He stood an obstacle to our obtaining official delegates, claiming that governments *had always neglected the holy name of hygiene*, le saint nom de l'hygiène, in all countries and in all times. *It was not, in his opinion, the way that leads to the goal to try to stir up the governments. It is a congress which takes place between known leprologists and not a congress of leprology.* Our goal was not so much a congress of leprologists, which I have taken the liberty to call very frequently a congress for talk only. What we wanted with absolute singleness of purpose was a congress to take practical measures against a disease against which talk, disputations of leprologists, etc., had availed nothing, that is to do everything possible, in order to obtain universal measures of isolation. Therefore it was our object to stir up the governments. Although he does not speak against isolation in his works, his acts in opposing the call upon governments to take part in the Congress were against isolation. Some shadow of this government representation was nevertheless obtained, but it was due to *our* initiative, to the fight we made, not to Dr. Ehlers, and not even to *Asmauer Hansen*. Especially was it not due to the non contagion clique of London.

One word as to the photograph of which he interdicts the publication without quotation of source. Dr. Ehlers would seem to like such pleasant expressions as *interdict*, though he reproaches me with being *grossier:* but it is only fair to attribute the strength of his expressions to his imperfect knowledge of the delicacy of the French language. I published a photograph of an Icelandic leper woman, with his permission, giving him due credit in "Suppression and Prevention of Leprosy." I copied it as an instance of melancholia of leprosy, which is my own interpretation of it, in the *Magazine of Medicine* subsequently. His name did not appear in that second publication; it was simply forgotten. There is certainly in this no justification for such tremendous trumpeting about the world of the wrong done to his photograph, which he had paid for by two perilous and disagreeable voyages. I think it would be a useful exercise for Dr. Ehlers if he tried to insert the following truth into his brain: Dr. Ashmead had a perfect right to use subsequently without any ceremony a photograph which he had once published in the regular way, with permission and quotation.

Let me say to Dr. Ehlers that the mixed system of isolation of Norway has driven to the United States 17,000 Norwegian emigrants of *leprous families*, and thus served only to transfer the leper problem from Norway to America. *International* government laws, which I stand for, would prevent that.

If he considers this duly and seriously he will surely find that it is (though he says my publications are *inutiles*) more important, more useful to meditate upon than anything he has ever written in any of his works, published after such perilous and disagreeable voyages.

With a pleasant felicity, which is rare with Dr. Ehlers, he observes that it is I who shall *be isolated with my demand*, not so entirely isolated, however; for, as I said above, there was, in the presence of some government representatives, at Berlin something like a foreshadowing of international leper law.

We Americans are interested, I mean directly, not in our own leprosy, for we have none; we are interested in the leprosy of Norway, Japan, China, Hawaii and South America, to prevent the disease from being brought by emigration, which would easily be done by international arrangements, by stirring up the different governments. Even from the 159 lepers which Dr. Ehlers so successfully saw in Iceland, four have since escaped to this country, and almost while Dr. Ehlers gave himself up to the charms of the congressional, leprologist, non-international conference, these four contaminated Manitoba!

ALBERT S. ASHMEAD, M.D.

License in Germany.

TOLEDO, OHIO, Dec. 10, 1897.

To the Editor:—Dr. Blech's answer to the inquiry as to the admission to the practice of medicine in Germany is not quite correct.

To be matriculated as a student of medicine, one must be a

graduate from a gymnasium covering a classical course of nine years. These graduates are 20 years old on the average. After four semesters, usually during the fifth, the medical student passes the *tentamen physicum*, an examination in physiology, anatomy, physics, chemistry, physiologic chemistry, botany, mineralogy. Before passing the *tentamen physicum* the student is not admitted to the clinics. The candidate for *State examination* must have studied medicine and the allied branches for *at least* eight semesters, of which not more than three are allowed to be passed at a recognized foreign university. While eight semesters are the required time, it is by no means the average, which may be put at ten semesters.

A *foreign physician*, who wishes to practice in the German Empire, must furnish satisfactory proofs that his preliminary education is equal to the one required for matriculation from the German student of medicine. From the American physician the college degree of A.B. or A.M. is considered as equivalent. Upon the further proof that he is legally entitled to the practice of medicine in his native country, he will be admitted to the German State examination without attending one hour clinics or lectures or anything at the German school.

At this occasion I wish to correct the erroneous statement which is frequently heard, that the diplomas from a few American schools, like Ann Arbor, Harvard, Johns Hopkins, and some others, are recognized in Germany. It is not so! Their diplomas do not entitle to practice in Germany. Quite a number of foreign physicians are practicing in Germany, especially at watering places and similar sanitary institutions, and they had to fulfill the requirements as described.

Another class of foreign graduates in the German Empire is formed by professors at the universities, who not infrequently receive calls from one European State to another. These men only receive the State diploma without passing any examination. For instance: Billroth was a German graduate, but he received and accepted calls as professor to Zurich in Switzerland and to Vienna in Austria. Ziegler, the well known pathologist, is a Swiss graduate, and now in Germany. A number of Germans are professors in Switzerland, etc.

The requirements are about the same in all the different States in Europe. In whatever empire one wishes to practice medicine he has to procure the State diploma.

This explanation shows that Germany lays the most stress upon the preliminary education. The reasons are obvious.

B. BECKER, M.D.

Appendicitis.

EVANSVILLE, IND., Dec. 3, 1897.

To the Editor:—The alarming mortality rate following operative measures for the cure of appendicitis in this city has caused considerable comment of a questionable nature, recently and in the daily papers this morning the Board of Health has taken the matter into consideration. A recent case of operation during convalescence, and the patient's death in less than thirty-six hours, has opened the way to adverse criticism. In the case mentioned the operation seems to have been done through jealous rivalry, with a large fee as an incentive, which only too plainly demonstrates the fact that the surgeon above all others should be a man of unbiased mind.

During my twenty-six months of hospital work in Louisville, Chicago and this city, I have carefully observed the medical and surgical diagnosis and treatment of this disease and noted the difficulty in differentiating between it and typhlitis, perityphlitis, para-typhlitis, volvulus and intussusception and all forms of intestinal obstruction, and have arrived at the following conclusions;

1. An operation for appendicitis is usually demanded *the moment the diagnosis is absolute*, the condition of the patient and other indications justifying, provided the case is of the *progressive type* with the bowels locked, and treatment seems of no avail.

2. If the temperature is not high, the pulse is not irregular and not weak, if the pain is not intense; if the patient rests moderately well without, or with very little anodyne and the case seems to be of a *moderate type* and at a stand-still, then every effort should be made to move the bowel, reduce the inflammation and tympanites, soften down and carry out the inspissated feces, flush the bowel and *keep it open*, use intestinal antiseptics, tone up and sustain your patient and carry him through *without* surgical intervention.

3. If, after recovery, there still remains a sickening pain of a radiating character in the region of "McBurney's point," increased by the administration of strychnia or other agents stimulating peristalsis, denoting plastic adhesions and future trouble, a coated tongue and torpid constipated bowel, then tone up and build up your patient. Remove all offending material from the sigmoid colon and cecum by high enemas and hydragogue salines and remove the crippled disturber. Break up all adhesions under anti- and aseptic precautions, and your patient will stand every chance of a speedy and permanent recovery.

4. Do not as too many supposedly good surgeons have done, operate on a patient afflicted with appendicitis too soon after the crisis is over, and thereby stir up an inflammation afresh that is practically past.

Many a man's life has been lost by an operation performed at this time, when the patient was slowly but surely convalescing, with the bowel open, the pulse only slightly accelerated and temperature 99 or 99.5 degrees, and in fact when operative interference of any nature was *strictly contra-indicated*.

W. F. STERMAN, M.D.

"Edema Universalis."

NEW YORK, Dec. 10, 1897.

To the Editor:—Such little blunders, as forgetting that a word ending in "a" is not always a Latin feminine, but may be, and very often is, a Greek neuter, are exceedingly unpleasant and it takes a deal of philosophy to overcome the bitterness of being corrected. Yet, let me tell you of an instance whose mention must pour balsam into any such grammatic sore. When Victor Cousin published his Plato, he wrote the title thus or about thus: *Platonis Opera Omnia Victor Cousin Recollexit.* The book with that title was spread all over Europe, over all the world, in fact, causing everybody to ask how it could be that such a great man did not know the tenses of *recolligo*.

M.D.

The Word "Os."

SAN DIEGO, CAL., Dec. 11, 1897.

To the Editor:—Were I an editor I should not object perhaps to read the Old English *thon*, but I should draw the line as do you at the too common substitution of "orem" for the classic and correct accusative of that old neuter noun, *os*.

Truly yours. F.

PUBLIC HEALTH.

Control of Quarantine.

GOVERNOR BLOXHAM OF FLORIDA WRITES A LETTER ON THE SUBJECT.

GOVERNMENT SHOULD CO-OPERATE WITH THE STATES.

REASONS FOR A NATIONAL DEPARTMENT OF HEALTH GIVEN.

FLORIDA'S SYSTEM AN EXAMPLE OF EFFICIENCY.

TALLAHASSEE, FLA., Dec. 3, 1897.

Upon the request of the publishers of that journal, Governor Bloxham has written the following letter to the *New Orleans Picayune:*

T. G. RAPIER, ESQ., Manager *Picayune*, New Orleans, La.

Dear Sir:—I have the honor of acknowledging your favor of recent date requesting an expression of my views upon the

question of State, interstate or Federal control of quarantine against the future invasion of disease. Never having worshiped at the shrine of Æsculapius, it will be impossible for me to present anything of a scientific character, but simply such thoughts as have been engrafted upon my mind by the experience of the last ten years in Florida and enforced by the views of the health authorities, in whose judgment I place great confidence. Were those thoughts summarized, they could be condensed in one expression:

Government co-operation with State control.

Our health authorities have frequently placed themselves on record in the matter of public health regulations. The State Board of Health of Florida is a unit upon the necessity of Federal legislation looking to the creation of a Department of Public Health with a recognized head. The members of the board at an annual meeting a year or two ago adopted a strong memorial to our State Legislature and our Congressional delegation, earnestly recommending concerted action in this direction. Could a cabinet officer be invested with a more responsible duty than looking after the health of seventy millions of people? Then why not create a Department of Health with a cabinet officer at its head, with ample power and authority to render assistance, when needed, but whose principle line of action and basis of union with the ideal public health system shall be co-operative and contributory to the several State boards of health?

NATIONAL DEPARTMENT OF HEALTH.

Let there be a "Secretary of Public Health," with State boards as his coadjutors. Let him formulate a uniform maritime quarantine and domestic or internal sanitary code to be enforced and operated by the several States.

The AMERICAN MEDICAL ASSOCIATION has embodied this idea, carried out in all its details, in a bill, which has received the indorsement of many of the leading sanitarians and public health organizations of the several States, and which I presume will be called to the attention of Congress with the indorsement of the great mass of the medical profession of the country. The country, and no portion so urgently as the Southern States, needs such a measure, or any course that will relieve a small bureau of the Treasury Department of the necessity of taking care of the lives of millions of people.

By what decree of Providence of common sense is it ordered that the financier of the Union—the Secretary of the Treasury—burdened with care beyond endurance, by environment and education harnessed to a most potential and engrossing charge—made the arbiter of matters of life and death to the countless thousands? Who more unfitted to deal with the great issues of public health than the steward of the nation's wealth? And why relegate to a mere departmental division a responsibility second to none, and one which should be confided to no care but that of the ablest and most experienced?

At present, Governmental health affairs are administered through and by the Marine-Hospital Service—an organization for the care of sick seamen, though nominally committed to the Secretary of the Treasury, who, perforce, both by reason or stress of other matters and the necessity of some medical culture, has to foist them upon a subordinate. And what record is attributed to this Marine-Hospital Service? It is claimed by those in a position to know that inadequate measures upon the part of this service not only admitted, but almost contributed to the infection at Key West and Tampa in 1887, which was followed by the epidemic of 1888. Who, then, was responsible for the epidemic of 1888?

Who was responsible for the entrance of yellow fever at Brunswick in 1893? Was there not mismanagement at that port? And who was in charge of its maritime quarantine?

Who is responsible for the introduction of the recent plague in the first instance, through Ship Island Quarantine Station, near Biloxi? Was anything accomplished by this service to prevent a further spread of the disease after its careless introduction? Was confidence established, without which the country may always expect the barbarities of the shotgun quarantine?

The answer to these inquiries, which are not aimed at individuals, but at the system, must necessarily have weight in determining future legislation. Let us have a Department of Public Health, most assuredly, but let it be advisory and co-operative, and upon lines that will be an earnest of satisfactory and successful administration. Florida has been virtually free from yellow fever for eight years, and what few cases have appeared have been promptly stamped out.

What more striking lesson than that presented by Florida's health record during the months of September, October and November of this year, when intercourse between the cities and towns of the neighboring States was hampered, when not totally inhibited, by local quarantines? While within this State no embargo of any description rested upon freight or passenger intercourse, and you came and went at will without even the suggestion of quarantine.

The reason is not obscure. Florida, after its experience of 1888, like the people of the whole country at this time, had its attention directed to a future invasion of the disease, and called into existence a system which its years and successes have demonstrated to be thoroughly efficient, and which has so won the confidence of the people that it has been enabled throughout the exigencies of the past summer to at once allay apprehension and suppress excitement.

To the student of the matter, Florida's part in the yellow fever history of this year evidences not only the capacity of our health officials, but the wisdom of our system, and arouses a desire for a similar condition in other States.

Should a co-operative and contributory system, as suggested, ripen into proper legislation, those in charge should be well qualified to take into consideration your inquiry as to the best means of preventing a recurrence of the epidemic, and at the same time minimizing the embargoes of commerce.

Very truly yours, W. D. BLOXHAM.

The Bubonic Plague still furnishes items to the press. Its ravages, according to a Bombay dispatch dated December 6, are still unabated at Poonah.

The War Against Typhoid Fever Germs is brisk in many centers of the milk supply in New York and New Jersey. The sources are found in the dilution with polluted water and the careless cleansing of cans. The Health Boards are to be hardly blamed for a want of vigilance, certainly not in this summary waste of the materia morbis.

Health in Chicago.—The report for October shows that the total number of deaths were 1,716 or 1.05 per 1,000; the rate for the same period in 1896 being 1.06 per 1,000. Of these 1,716 deaths, 419 were persons under 1 year old, 180 between 1 and 5 years old; 191 were due to acute intestinal diseases, 208 to nervous diseases, 193 to consumption, 134 to pneumonia, 96 to diseases of the heart, 61 to typhoid fever, 61 to diphtheria and membranous croup, 60 to bronchitis and 58 to cancer.

Health in Michigan.—Reports for November show consumption, remittent fever, typhoid fever, intermittent fever, pneumonia and erysipelas less prevalent as compared with the average for November during the 11 years, 1886-96. Consumption was reported in 172 places, typhoid fever in 111, diphtheria 66, scarlet fever 57, measles 37, whooping cough 18, and smallpox one place, this being a decrease from the October reports as to consumption and typhoid fever and an increase as to diphtheria, scarlet fever, measles, whooping cough and smallpox.

NECROLOGY.

JOHN BERRIEN LINDSLEY, M.D., Nashville, Tenn., died December 11. Dr. Lindsley was graduated from the University of Nashville in 1839, afterward taking his Master's degree there in 1841, in which year he began the study of medicine. He received the degree of M.D. from the University of Pennsylvania, Department of Medicine, in 1843. He devoted the years 1845 to 1850 to the study of natural science and in 1859 took courses of instruction in European institutions. In 1850 he began teaching medicine at Nashville, Tenn., where he has passed his life as a practical educator. From October, 1850 to April, 1873, he was Professor of Chemistry and Pharmacy in the Medical Department, University of Nashville, and was Dean of the Faculty until 1855, having been one of the founders of that institution in 1850. Largely through his influence was brought about the creation of a normal school, which has been in successful operation since 1875. From 1877 to 1879 he was Secretary and Executive Officer of the State Board of Health of Tennessee, and again since 1884, President of the Board from April 1 to July 1, 1884, and Professor of Chemistry in the Medical Department, University of Tennessee from 1889.

The Doctor was a prominent member of many societies, among them the Tennessee State Medical Society, AMERICAN MEDICAL ASSOCIATION, American Academy of Medicine, American Association for the Advancement of Science, American Public Health Association, etc. He served at Nashville during the cholera epidemics of 1849, 1854, 1856 and 1873, and in 1878 was in charge of the yellow fever refugees to that city. Dr. Lindsley edited the reports of the Nashville Board of Health for 1877–79, reports of the Nashville Board of Health 1880 to 1884, and the *State Board of Health Bulletin* 1889 and 1890 to 1894. Other works from his pen are numerous. In the reports of the American Historical Association, 1889 to 1892, twenty-nine titles of papers from his pen are mentioned. In addition to his medical and sanitary work, Dr. Lindsley devoted considerable time to ecclesiastic labors, being ordained in 1846 by the Presbytery of Nashville and for several years thereafter acting as minister to country churches and slaves connected therewith. The College of New Jersey (Princeton University) conferred the degree of S.T.D. on the Doctor in 1858, and since 1894 he has been Lecturer of Sociology in the Theological Department of the Cumberland University, Lebanon, Tenn. The Doctor was born at Princeton, N. J., Oct. 24, 1822, being a direct descendent from one of the earliest English settlers of the New Haven Colony.

CHARLES HARVEY QUINLAN, M.D., D.D.S., Evanston, Ill., December 6, aged 76 years. Dr. Quinlan had been a resident of Chicago and its suburbs since 1846. He came from Albany, N. Y., where he was born Feb. 19, 1821. Immediately after his graduation from a dental school at Buffalo he opened an office in Chicago. He at once became one of the most prominent men of his profession in the city. The introduction here of sulphuric ether as an anesthetic brought him fame. It was in the fall of 1846, when the method of application was discovered in Boston and full instructions for its manufacture and use were sent to Dr. Quinlan by his uncle, Dr. Harvey of Buffalo. Ether was then known as a letheon, and Chicago is the first city west of the Alleghanies where it was given a practical test. This test was given in a public clinic at Rush Medical College, where an amputation was to be performed. Dr. Quinlan was asked to be present and administer the anesthetic. Wide publicity was given the test, and the result was entirely satisfactory. The newspapers of the country teemed with accounts of the experiment and Dr. Quinlan was given great praise. Shortly after this, chloroform was discovered, and the formula was immediately procured by Dr. Quinlan. He was the first to distill this anesthetic in Chicago. Dr. Quinlan took the degree of M.D. from Rush Medical College in 1865, and practiced in Lake Forest until his removal to Evanston in 1875. Since then he has lived a quiet life at his residence, 1619 Chicago Avenue. He built the Avenue House, Evanston's fashionable hotel in 1882. He was one of the founders of the Lake Forest University, being one of four men to give $1,000 each to start that school.

ALEXANDER W. STEIN, M.D., New York University, 1864, died at his home in New York from cirrhosis of the liver, December 5. He was born in Buda-Pest, Hungary, fifty-seven years ago, and when 4 years old was brought to this country by his father, Louis Stein, surgeon-general of the revolutionary army and a friend of Kossuth. As a lecturer on surgery, professor of physiology in the New York College of Dentistry and a writer he was well known to the profession. He was delegate or attendant at most of the medical congresses here or in Europe.

J. HARVEY MANNING, M.D., Chicago, December 6, aged 38 years. He was educated at Cornell College, Iowa, and graduated from the College of Physicians and Surgeons in 1890. He afterward took a two years' course in Columbia College of Physicians and Surgeons, New York, graduating in 1892. He spent a year in St. Elizabeth's hospital, and later a year in the Iowa State Insane Asylum. He began regular practice in Chicago in 1895.

MARK H. LACKERSTEEN, M.D., Chicago, December 7, aged 62 years. The Doctor was a professor in the Post-Graduate Medical College. In his early years he took an active part in the famous Sepoy mutiny in India, besides holding high positions under the British government.

JOSEPH F. EDWARDS, M.D., Atlantic City, N. J., December 6. Dr. Edwards was born in Philadelphia, Dec. 8, 1853, and was a graduate from Georgetown College and the University of Pennsylvania and practiced medicine in his native city for sixteen years. He was formerly a surgeon of the Second Regiment, N. G. P. Dr. Edwards was the founder and former editor of the *Annals of Hygiene* and the author of *Edwards' Journal of Health*. He was a member of the Board of Managers of the Trenton Insane Asylum, also of the New Jersey Board of Health. He was formerly of the Pennsylvania Board of Health.

G. PERRY REYNOLDS, M.D., New York University Medical College, 1852, medical examiner for Guilford, Conn., died December 9, aged 68 years.——Robert N. Short, M.D., Miami Medical College, Ohio, 1871, died suddenly of cardiac disease at his home in Mechanicsburg, Pa., December 1, aged 66 years.——Mark Van Winkle, M.D., College of Physicians and Surgeons, New York, 1855, died in Little Falls, N. J., aged 73 years.——James F. Murray, M.D., Albany, 1866, of Gloversville, N. Y., died from abscess of the liver December 5, aged 52 years.——Dr. Jacquemet, *agrégé*, professor in the medical faculty of Montpelier, aged 72 years.——Dr. Poisson, Professor of Surgical Pathology in the Medical School of Poitiers.——Dr. J. B. Bottero of Turin, editor of the *Gazzetta del Popolo*, and the oldest journalist in Italy, aged 81 years.——Dr. A. Jazenko, some time privat docent of surgery in the University of Kieff, aged 55 years.——Dr. Cristino Cebrian, Professor of Anatomy in the University of Salamanca.——Dr. Arthur Scheffer, some time Professor of Chemistry and Physics in the University of Moscow, aged 65 years.——Dr. A. Gadaud of Périgueux, Senator for La Dordogne, and for some time Minister of Agriculture, aged 56 years.——Dr. Paul Guterbock, privat docent of surgery in the University of Berlin, and Dr. Zinn of Eberswalde, for many years one of the leading medical psychologists of Germany, aged 72 years.——W. M. Anderson, M.D., Charles City, Iowa, December 2, aged 63 years.——J. Spofford Hunt, M.D., Chicago, December 10, aged 63 years. During the war the Doctor served as surgeon of the Third Illinois Cavalry.——R. H. Johnston, M.D., Cromwell, Iowa, aged 61 years.——R. A. Kirkpatrick, M.D., Montreal, aged 34 years.——George A. Munro, M.D., Providence, R. I., a veteran of the Civil War, December 3, aged 60 years.——George Q. Orris, M.D., Seymour, Ind., December 3, aged 47 years.——John M. Small, M.D., Lewiston, Maine, December 4, aged 80 years.——R. T. Worley, M.D., Baton Rouge, La., of yellow fever, November 29.——James H. Pooley, M.D., Toledo, Ohio, December 10, Dean of the Toledo Medical College, suddenly.

BOOK NOTICES.

The Peritoneum. By BYRON ROBINSON, B.S., M.D. Chicago. Part 1. Histology and Physiology with 247 illustrations. Chicago. 1897. 8vo. Cl. C. V. Waite & Co., 70 State Street.

Books of this character have not been very common in this country, but we are developing a class of students that by earnest plodding and scientific work will eventually bring our work up to a level with the best literature abroad. There are many expressions that we do not admire in this book, there are some specimens of the misuse of words and some mistakes of proof reading, but when the whole work is fairly examined it will be seen to be comprehensive, thorough, honest and creditable. We fear that Dr. Robinson will hardly receive the great credit he deserves for his hard labor, but let the reader of this handsome volume stop for a moment to reflect what great industry was required in its compilation alone, to say nothing of the vast number of original experiments undertaken. It is, we believe, safe to say that a very large percentage of practitioners have a quite imperfect knowledge of the peritoneum, and especially its histology and physiology. The work under consideration will greatly aid in acquiring the knowledge so generally lacking in the text-books, and will be welcomed as filling a distinct gap in modern medical literature. The illustrations are well executed, the paper is good, and the type is large.

Pictorial Atlas of Skin Diseases and Syphilitic Affections, in Photolithochromes from the models in the museum of the Saint Louis Hospital, Paris. Ernest Beurier, A. Fournier, Tennyson, Hallopeau, Du Castel, physicians to Saint Louis Hospital, Paris, with the co operation of the Honorable Henri Feulard, Curator of the Museum and L. Jacquet, former House Physician. Edited by J. J. PRINGLE, M.B., F.R.C.P., Physician to the Department for Diseases of the Skin at the Middlesex Hospital, London. Part 12. London: Rebman Publishing Company. Philadelphia: W. B. Saunders; W. T. Keener, 52 Randolph Street, Chicago agent.

This part, which completes the set, contains five plates with seven illustrations, pictorial representations of the unrivaled models of Barreta, the original of which are in the museum of the St. Louis Hospital. The explanatory text accompanying these magnificent plates is the work of professional masters and therefore needs no special comment.

Plate 46 contains the hypertrophic form of syphilitic chancre of the nostrils. The diphtheroid form of syphilitic chancre of the tonsils by Alfred Fournier.

Plate 16 in the accompanying text, Xeroderma Pigmentosum, by R. Du Castel.

Plate 48, Impetigo Contagiosa, by Lucien Jacquet.

Plate 49, Urticaria Pigmentosa with Atrophic Spots, by H. Hallopeau.

Plate 50, Syphilitic Chancre of the Lip: 1. Scabbed form; 2, erosive form, syphilitic chancre of the tongue (ulcerative form) by Alfred Fournier.

The practitioner is fortunate who can secure for his library these beautiful reproductions of the collection of models in the famous Paris hospital.

Index Catalogue of the Library of the Surgeon General's Office, United States Army, Officers and subjects. Second series, Vol. 2. B-Bywater, Washington: Government Printing, 1897, pp. 954.

This volume, according to Dr. Huntington's statement, includes 15,732 author-titles, representing 6,383 volumes, 14,802 pamphlets; it also contains 5,774 special titles and special books and 21,725 titles of articles in periodicals.

This magnificent index, which has reflected more credit on American medical literature than almost any other work, and has done more to make the medical literature of the work available than any other, is progressing at the rate of two volumes a year, and in the same careful and accurate manner characteristic of the preceeding volumes.

We extend our congratulations to General Sternberg and Deputy Surgeon-General Huntington on the successful continuation of the work, and thanks to the wise Congress which by timely and liberal appropriations made possible this great undertaking.

Archives of the Roentgen Ray. We have received the July number of the "Archives of the Roentgen Ray," formerly Archives of Skiagraphy, London. Edited by W. S. HEDLEY, M.D., and SIDNEY ROWLAND, M.A., and the Editorial Committee. London: Rebman Publishing Company. Chicago agent, W. T. Keener, 52 Randolph Street.

The *Archives* has been modified in form and greatly increased in size from the former publication, and its scope is very materially broadened. By careful following of the pictures and studies of Roentgen one will be able to prevent the mistakes into which he otherwise would be liable to fall. The progressive surgeon can scarcely afford to be without the *Archives*.

Vade Mecum of Ophthalmological Therapeutics. By Dr. LANDOLT and Dr. GYGAX. Pages 138. Philadelphia: J. B. Lippincott Company. 1898.

This handbook is arranged in alphabetic order so that an index is not required, and is intended to give the essentials of ophthalmic medicine to the practitioner and students preparing for examinations.

It is a handbook for immediate reference. Translation has been well made by Dr. E. H. Neyman of Milwaukee with the consent of the author. Formula given in both decimal and English terms.

Lectures on Physiology. First Series. On Animal Electricity. By AUGUST D. WALLER, M.D., F.R.S. Pp. 144. London, New York and Bombay. 1897.

This work contains part of the material of course of twelve lectures on animal electricity delivered by the author at the Royal Institute during the spring of 1897.

There are six lectures giving the results of various experiments on animal tissue. These lectures are fully illustrated and are intended for advanced workers in the field of animal electricity. It also shows very fully how the modern lectureships depend more upon the laboratory than upon the lecture theater.

About Children. Six Lectures given to the Nurses in the Cleveland General Hospital in February, 1896. By SAMUEL W. KELLY, M.D. Cleveland Medical Gazette Publishing Company. 1897.

These lectures constitute a pretty successful attempt to bring technical information within the reach of nurses. Pupils at nurses' training schools generally will find the book full of information and therefore very useful to them, not only in acquiring necessary knowledge, but after graduation as a book of reference.

A Handbook of Midwifery. By W. R. DAKIN, M.D. Four hundred Illustrations, pp. 629. London, New York and Bombay: Longman, Green & Co. 1897.

This work is intended for students and junior practitioners. The subject is arranged in two divisions, those of physiology and pathology. The author has intended to make the work of high practical value without introducing any unnecessary details.

The printing is good, the illustrations are excellent and the work is very full and complete. By using fine type the publishers have succeeded in introducing as much matter as is usually found in the larger text-books.

Lippincott Company's Pocket Medical Dictionary; Including pronunciation and definition of twenty thousand of the principal terms used in Medicine and the allied sciences, together with many elaborate tables. Edited by RYLAND W. GREEN, M.D., Editor of Lippincott's Medical Dictionary. J. B. Lippincott Company, Philadelphia and London: 1897.

This is a pocket medical lexicon, handy in size, convenient, accurate and full, and contains more words than are to be found in most pocket lexicons, although it has omitted antique and obsolete terms. It will be found very useful.

MISCELLANY.

Medicine and Pharmacy in France.—The law which at present governs the practice of medicine in France, forbids the simultaneous practice of medicine and pharmacy, even by a person who may be in possession of diplomas in both subjects.

Bathing in London.—Foreign ideas of the British sense of propriety will receive a shock from the recent order of the London county council that men and boys bathing in public ponds must wear drawers. Hitherto they have bathed naked, and the minority in the council opposed the innovation as an "undemocratic step."

Pulmonary Phenomena of Hysteric Origin.—E. Leoni describes, in *Il Morgagni*, No. 6, a puzzling case of apparent pulmonary tuberculosis, with fever, râles and other symptoms of pulmonary trouble. They changed their position from one day to the other; sometimes on the right, the next day on the left, or absent altogether. Moral persuasion, suggestion and electricity resulted in rapid and complete recovery.—*Gazz. d. O. e d. C.*, August 15.

Clonic Movements in Syringomyelia Exclusively of Medullary Origin.—Marinesco has been studying, with various registering

apparatus, the clinic movements in this disease, affecting mostly the fingers. They sometimes assume the character of a partial epileptic attack of cortical origin, and have been attributed to the motor zone of the brain. He finds, on the contrary, that they are convulsive attacks resulting solely from the medullary irritation, independent of any cortical intervention.—*Bulletin de l'Acad. de Méd.*, August 17.

Pathology of the Lachrymal Canaliculi.—Mitvalsky describes the cystoid protuberances that develop in these canaliculi, and states that besides those in which the actinomyces are found, he has observed a case in which the contents were the empty shells of starch grains, the starch having been removed by chemic action.—*Wien. Klin. Rund.*, October 31.

The Theory of the Toxic Effect of Extensive Burns is confirmed by the results of Tommasoli's recent experiments with dogs, to which he administered the serum or meat extracts of other dogs that had been burnt. The invariably fatal effect was averted however, if, at the same time, he injected artificial serum, which he considers the logical treatment for extensive burns. He reports one very severe case saved by injections of artificial serum and another which showed marked improvement after each injection, although the patient finally succumbed to his injuries.—*Cbl. f. Chir.* from *Monatsheft f. Prakt. Derm.*, Vol. xxv, No. 2.

Delay in Mailing.—For the first time since the fire, our mail was delayed last week. We had purchased at considerable expense a cutting machine known as Sheridan's "Auto." For the last three weeks the "*Auto*" failed to work when wanted by reason of breakage, breaking down when just in the midst of the edition. The Sheridan Company having received their money have taken little interest in its working, and left the office to fix up its machinery as best it could. We are sincerely sorry to have the delay inconvenience our members, but it has been unavoidable.

Construction of Medical Practice Act.—While some attack was made on the New Mexico statute "to regulate the practice of medicine," etc., approved Feb. 27, 1895, the supreme court of New Mexico assumes it to embrace a rightful subject of legislation. It also holds, in re Roe Chung, Aug. 25, 1897, that there is nothing unconstitutional in the provision of the statute that the penalty denounced is to be recovered in an action of debt, which is converted into a fine proceeding to enforce its collection. And it holds that a justice of the peace has jurisdiction of an action to recover the penalty for a first offense, which is $100. In this, it holds that a statute of 1889, providing that for all fines and costs imprisonment may be suffered at the rate of $1 per day until the days amount to the fine and costs, should be read into the act of 1895.

Can Refuse to Sell Coffins.—Not only may a heartless grocer refuse to sell a starving man provisions, but an undertaker can refuse to sell a coffin for the burial of a dead person and can refuse to accept employment in his capacity of an undertaker. Such is the decision of the court of appeals of Kentucky in the case of Brewster against Miller. More particularly does the court decide here that an undertaker is not bound to accept employment or furnish articles necessary for burial where the person asking for same is indebted to him for previous services. The court says that one has the right to decline to enter into a business undertaking with anyone. It also holds that to afford mutual protection against such persons, it is not unlawful for the undertakers of a community to associate themselves together and agree to refuse to render a like service to one who has refused or failed to pay such expenses in the past to some member of the association.

The Solubility of Gallstones in Oil.—To determine the solvent power of various oils on gallstones, Scott (*British Medical Journal*, No. 1917, p. 798) exposed in a warm chamber at 98.4 degrees, beakers containing from 20 to 50 c.c. of oil, the quantity varying according to the size of the stone used in the experiment. After immersion the stones were removed from time to time, gently dried with filter paper and weighed. The oils employed were pure olive oil, pure almond oil and the odorless and tasteless purified petroleum oil known as parolein. The stones used in the first experiment were passed by a patient in whom treatment had been employed with olive oil with some success. They were about the size of dried green peas, facetted, friable, and dark greenish brown in color. As they dissolved, they showed a thin outer brownish layer of pigment, a thick middle layer light yellow in color consisting largely of cholesterin, and a small dark nucleus of pigment. They dissolved with about equal readiness in the different oils, losing approximately one-quarter of their weight in twelve hours, one-half in twenty-four hours, and three-quarters in forty-eight hours. After thirty-six hours' immersion, little was left but the nucleus. The stones used in the second experiment were removed from the gall bladder by operation. They were considerably greater in bulk than those of the first experiment, being somewhat larger than cherry stones. They were hard in consistence and appeared to dissolve uniformly, maintaining their original brownish yellow color. In the process of solution they exhibited no well defined layers. They seemed to contain a larger amount of pigment and salts than the other stones and lost a much smaller percentage of their weight during corresponding periods of immersion in the oil. After four days those immersed in olive oil had lost rather more than half their original weight, those immersed in almond oil exactly half, and those immersed in parolein less than one-third. The stones used in the third experiment were obtained from the same source as those used in the second. They were of enormous size, being as large as filberts. Although they commenced to dissolve in one hour, the loss of weight per cent., as time went on, was not nearly so great as in the previous experiment. At the end of the twenty-five days, those immersed in olive oil had lost rather more than half their original weight and those immersed in parolein rather more than one-quarter.

Earth Worms as Propagators of Disease.—Dr. Halsted Boylan of Paris has recently presented some ideas concerning the cause of yellow fever, charbon and tetanus, and he claims that the worms coming to the surface of the earth from the bodies of those buried who have died of these diseases frequently act as propagators of the germ or poison. The earth itself becomes contaminated and the poison is inhaled by man, eaten by cattle or infects the water, which afterward becomes a fruitful source of disease propagation. Verneuil has called attention to the fact that tetanus is most frequent among those coming in any way into contact with horses, it only being necessary for men under these conditions to have upon their hands a small cut, scratch or wound inadvertently brought into contact either with the manure containing the bacillus or with the ground infected thereby. The first experiment of this kind was made by Nicolaier, who demonstrated that the subcutaneous inoculation of earth taken in the fields, gardens and streets determined in mice, rabbits and guinea pigs, at times septicemia by septic vibrios and at others tetanus. The contamination from below the surface is two-fold; miasma and emanations from the soil in paludial districts or when particles of organic substances rise to the surface in different states of alteration, coming from the tissues of decomposing animal matter and by the ordinary rain worm. W. Theobald in a recent lecture claimed that in 1850 yellow fever appeared in the Valley of the Amazon where it had been previously unknown, and a careful investigation traced its origin in that locality to the burial of a man from Jamaica who had died from the fever and had been landed at Para for burial. The soil on the surface was found to be charged with the microbes of yellow fever. The question now rises whether typhoid and malarial fevers may not be also disseminated in this manner. The one has its bacillus of Eberth and the other its hematozoon of Laveran. Both are very resistant and the worms may swallow particles of them and deposit them on the surface with the same facility as the bacilli of yellow fever, although this method of transmission

of typhoid and malarial fevers is not generally admitted. Pasteur has found the germs of charbon in the superficial layers of the earth over ditches where sheep that had died of the disease several years previous had been buried. The earth worms are the first carriers. In the depths of the soil they swallow minute particles of earth containing the spores formed around the cadavers of men and animals, for the purpose of extracting from them what nutritive substances they may contain and rendering them on the surface in the form of little twisted cylinders of a dark brown color. The practice of cremation is strongly urged to destroy these dangerous elements of both the bodies of those having died of the contagious and infectious diseases and the soil surrounding their place of burial.

Telegraphy Without Wires by the Marconi and Rubens Methods.—The *Consular Reports*, September, has a communication from Consul General DeKay, at Berlin, regarding the present status of the above subject-matter, interesting to the profession. The latest work in this direction appears to have been done by Rubens of Frankfort who is an instructor in electric physics at the Berlin Policlinic. Marconi experimented from the British mainland to an island four marine miles distant. He used a generator of electric waves invented by the late Professor Herz, which generator throws the waves of electricity in all directions, as the rays of light emanate on all sides from a flame. The problem was to concentrate these waves of electricity in one direction, namely, toward the island. This he did by placing a concave mirror behind the Herz generator, by which the waves were reflected and made parallel in the required direction. On the island he placed what is called a "coherer," that is to say, a tube filled with particles of metal of just the right size and quality for the purposes now to be set forth. The coherer was set before another concave mirror, so placed that it would catch the electric waves coming parallel across the water from the concave mirror and Herz generator on the mainland. The coherer was set exactly at the focus. Imagine that the Herz generator on the mainland is a flame whose light rays are caught by a concave mirror, thrown over to the island, caught there in another concave mirror and focused on the coherer. Now, the metal particles in this coherer are so adjusted as to size that the whole may be likened to a violin string which vibrates when a certain sound is made by the voice. As one can tune a violin string to a certain note, so one can find the metal particles that will vibrate to an electric wave of a certain size. Try to pass an electric current through these particles at ordinary times and there will be no result; but when the waves generated by the Herz generator, coming from a distance, fall on these particles, a vibration is set up in them, they touch each other, and a charge of electricity applied to the tube is allowed to pass through and can be registered in the usual way. Thus, the coherer, being supplied with an ordinary battery and Morse electromagnet, permits the circuit to be closed when the electric waves from the mainland reach it. The click is registered only when the rays or waves from the Herz generator are reflected on it. The electric waves are not believed to be vibrations in the air itself, but rather in the ether between the particles of air. As compared to light waves, they are of enormous relative size. It will be noted that the electric current on the island sent through the coherer has no other office than to strengthen and register the effects of these waves or rays caught by the concave mirror and focused on the coherer. Professor Rubens, a young German of Dutch extraction, recently delivered an address at the Polytechnicum in Charlotten-Berlin, before a number of instructors, in the course of which he said:

"Since Herz's death in 1888, much progress has been made in reducing the size of the electric-wave generator. As the size of the apparatus has a relation to the length of the electric waves, and as it was desirable to shorten these waves, the decreased size of the apparatus has been of use in making air telegraphy more practicable. Shorter electric waves are more approximate in their action to waves of light, and go further. Up to the present, the shortest are those of the Russian experimenter Lebedew, who has produced them from 6 to 7 millimeters long. Professor Rubens showed a thermo-element or heat catcher, invented by himself to take the place of Marconi's coherer, which catches, like the coherer, the refracted and focused electric rays. The spark, he observed, was not at all a necessary phenomenon in electricity. He then made many curious experiments to show the similarity in action of waves of light and waves of electricity, and also drew attention to the very different way in which electric and light waves pass through different substances. Thus he reflected electric waves like light, refracted them with prisms, and diffracted them with a wire grating of parallel wires, as light is diffracted by Langley's grating. He then showed the polarization of these rays—freely, through the fibers of wood longitudinally; and badly, across the fiber; easily, through closed books with the leaves; and with difficulty, across. Thus a pile of books or sheets of glass showed polarization like crystals under light. He showed, also, that on account of the length of these waves, their energy was absorbed differently by different substances: thus, 1, water absorbs all the energy; 2, metals absorb all the energy; 3, glass absorbs nearly all; 4, paraffin absorbs hardly any, and 5, hard rubber absorbs hardly any. Thus they move through hard, black rubber and paraffin as light moves through air, glass or water, that is to say, with hardly any resistance, while glass lets very little of them through, and metal and water are impervious to them. Professor Rubens imbeds his Herz generator in petroleum for better isolation, and, as a handy concentrator of the electric waves or lens, uses a round glass bottle filled with petroleum. By placing in turn the glass prism, wire grating, block of wood, pile of books, water, paraffin and hard rubber in the line of the unseen electric waves pouring from the generator and concentrator toward the wave catcher, he showed on an indicator the passage, easy or retarded, of the unseen flow or its entire interruption."

Detroit.

THE REGULAR MEETING of the Wayne County Medical Society was held December 2. Dr. W. T. Corlett of Cleveland, Ohio, read a paper on "Recent Researches in Ringworm." The paper was illustrated with lantern slides and microscopic specimens, showing the different clinical varieties of the disease and the microscopic features. The doctor, who is a disciple of Sabouraud of Paris, gave as the divisions of ringworm, tinea tonsurans, tinea sycosis and tinea circinata. He divided the fungi which cause ringworm into the trichophyton microsporon, trichophyton megalosporon endothrix and ectothrix, each of which produces a distinct clinical variety of ringworm. The first produces ringworm of the scalp in children of from 2 to 15 years of age. It is extremely rebellious to treatment except on hairless surfaces. The second produces nearly all cases of tinea circinata of the body, eczema marginatum and sycosis without folliculitis. It is much less contagious than the first variety and yields very readily to treatment. The third fungus is supposed to be of animal origin. In childhood it gives rise to kerion and in men to sycosis accompanied with deep suppurative folliculitis. The clinical features of each variety of the disease were minutely described, together with the microscopic features of the hairs involved. For the treatment, thorough cleanliness, epilation of the hairs, chrysophanic acid, oleate of mercury and of copper and boracic acid were recommended, and the specific treatment for each variety was thoroughly discussed.

A MEETING of the physicians of Detroit was called by the local board of health on Saturday afternoon, December 4, to discuss the necessity of placing tuberculosis and whooping cough in the same category with diphtheria, smallpox and such diseases, placarding the houses where tuberculosis and where whooping cough exist and isolating the patients infected with such diseases as proposed by the State Board of Health. There were about forty of the representative physicians of the city present. After discussion, the following resolution was unanimously passed: "That it is the sentiment of this meeting that it is unnecessary and inadvisable to placard, isolate, or in any way make public the fact that any person has consumption, but that it would be advisable to educate the public through the physician by suitable literature from the Board of Health. Further, in assisting the physicians, it would be advisable for the health board of the city to institute bacteriologic examination of sputum." Whooping cough was then taken up, and it required only three minutes to discuss and

pass a motion discountenancing the proposal to include it in the list of contagious diseases.

HEALTH REPORT for week ending December 4: Births, male 39, female 36. Deaths 69, of which 25 were children under 5 years of age. Contagious diseases: Diphtheria, 13; scarlet fever, 64; deaths from diphtheria 4, none from scarlet fever.

Dr. C. B. EGGEMAN of this city died on November 30. He was the son of the late Dr. Rudolph Eggeman, and was born in Detroit, March 23, 1857. He was a graduate of the Detroit College of Medicine, class of 1879. After taking his degree he went to Philadelphia and attended the Ophthalmic College, and then began the practice of his specialty of diseases of eye and ear in Detroit in 1881. He was a member of the Masonic fraternity and of several other local societies.

THE 44TH SANITARY CONVENTION OF MICHIGAN was held in Detroit under the auspices of the State Board of Health, December 9 and 10. President Thomas W. Palmer addressed the convention. Papers were read by Prof. Frederick G. Novy, M.D., of Ann Arbor, "Germs, What they are and how they Produce Disease;" by Hon. Frank Wells, President State Board of Health, Lansing, "Statement of the Objects of the Convention;" by Guy L. Kiefer, M.D., Detroit, "Isolation and Disinfection of Persons and Things;" by Miss Harriett Marsh, Principal of Hancock School, "Popular Education in Sanitary Science;" discussion of the subject by Prof. S. Emory Whitney, principal of Cass School, Detroit, and Prof. Delos Fall, member of State Board of Health, Albion; by Charles T. McClintock, M.D., Detroit, "From the Purely Scientific Standpoint;" by Chas. G. Jennings, M.D., Detroit, "From the Physician's Standpoint;" by Oscar Le Seure, M.D., member of Detroit Board of Health, "From the Standpoint of the Local Board of Health;" by John McVicar, president of the Board of Public Works, "Streets and Alleys and Their Relation to the Public Health," discussed by Mrs. L. H. Trowbridge, Dr. J. E. Clark and Dr. Longyear.

Washington.

HEALTH OF THE DISTRICT.—The report of the health officer for the week ended December 4 shows the total number of deaths to have been 83, of which number 44 were white and 39 colored. The principal causes of death were: consumption 11, heart disease 5, pneumonia 14, typhoid fever 2.

MEDICAL SOCIETY.—At the recent meeting of the Medical Society Dr. Deale read an essay entitled the "Climatic Treatment of Pulmonary Tuberculosis," and presented specimens of fibrosarcoma of the uterus. Dr. Stone presented specimens of extrauterine pregnancy and appendicitis. Dr. Allen read a paper on "Senile Epilepsy." Dr. Caldwell presented a specimen of cancer of the stomach, and Dr. Acker presented a specimen of tubercular tumor of the brain involving the cerebellum and pons.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 271st meeting of the Society was held on December 3. Dr. Acker read a report on two cases of acute purulent peritonitis in infancy.

Hospitals.

ST. LUKE'S HOSPITAL, Borough of Manhattan, New York City, at the annual meeting in December showed that the death rate from all causes for the year was 10.3 per cent. In the medical department 1,201 cases were treated, and 1,243 in the surgical department. In the patient or dispensary department, which was opened on Nov. 4, 1896, 2,608 new patients have been treated and 9,930 visits made. The total house expenses for the year were $153,299.04. A report made by the building committee stated the cost of the new buildings to be $1,749,605, which, added to $530,000, the cost of the land, brings the total outlay up to $2,279,605. The deficiency of income as against expenses for the year ending Sept. 30, 1897, was $57,499.25.

Societies.

The following meetings are noted:

Connecticut.—New Haven Medical Association, December 2.

Georgia.—Athens Medical Society, December 2.

Illinois.—McLean County Medical Society, Bloomington, December 2.

Indiana.—The Perry County Medico-Surgical Society, Tell City, was organized December 4.

Iowa.—Iowa Central Medical Society, Marshalltown, December 14; Polk County Medical Society, Des Moines, December 7.

Maine.—Portland Medical Club, December 2.

Massachusetts.—Eastern Hampden Medical Association, Springfield, December 2.

Minnesota.—Hennepin County Medical Society, Minneapolis, December 6; Minnesota Academy of Medicine, Minneapolis, December 1; Minnesota Valley Medical Association Mankato, December 6.

New York.—Glens Falls Medical and Surgical Society, December 2.

Ohio.—Cuyahoga County Medical Society, Cleveland, December 1; Logan County Medical Society, Bellefontaine, December 5.

Pennsylvania.—Harrisburg Academy of Medicine, December 3; Lebanon County Medical Society, Lebanon, December 1; Luzerne County Medical Society, Wilkesbarre, December 6; York County Medical Society, York City, December 2.

CHANGE OF ADDRESS.

Appleby, T. E. W., from 226 Summit Ave to 48 E. 4th St., St. Paul, Minn.
Bullard, W. M., from Wickes, Mont. to Fall Brook, Cal.
Fisk, F. F., from Chicago, Ill. to Waterloo, Ind.; Friedel, A. H., from 27 Waverly Pl. to 328 W. Monroe St., Chicago, Ill.
Hanna, C. U., From Palaskala to 46 So. 6th St. Zanesville, Ohio.
Langdon, F. W., from 65 W. 7th to 5 Garfield Pl. Cincinnati, Ohio; Litvin, A., 536 So. Halsted to 568 W. 14th St., Chicago, Ill.; Lagorio, A., from 65 Randolph St. to 228 Dearborn Ave, Chicago, Ill.
Moody, H. A., from Bailey Springs to 408 Government St., Mobile, Ala.;
Miner, A. L., from Ponsford, Minn. to Bellows Falls, Vt.
Pomeroy, H. M., from 206 W. 133th St. to 222 W. 23d St., New York, N. Y.
Rugg, D. F., from Hartland, Vt. to Adirondack Cottage Sanitarium, Saranac Lake, N. Y.
Straley, S. B., from Andover, N. J. to Pasadena, Cal.; Shastid, T. H., from Galesburg, Ill. to 262 N. Washington St., Battle Creek, Mich.
Thomas, J. D., from the "Cairo" to 1134 Connecticut Ave, Washington, D. C.

LETTERS RECEIVED.

Alta Pharmacal Co., St. Louis, Mo.; Alkaloidal Clinic, Chicago, Ill.; Ayer, N. W. & Son, Philadelphia, Pa.
Braden, J. N., Well Spring, Tenn.; Banton, J. F., Rockford, Ill.; Bailey, W. C., Las Vegas Hot Springs, N. M.; Battle & Co., St. Louis, Mo.; Beaumont, R. L., Chicago, Ill.; Bronson, A. F., (2) Girardville, Pa.; Bryant, Miss Grace W., Chicago, Ill.; Brady, Jos. B., Grand Rapids, Mich.; Bosher, L. C., Richmond, Va.; Butterworth, Alice, Chicago, Ill.; Baltimore & Ohio Southwestern Railway Co., Cincinnati, Ohio; Bates, U. C., Ransom, Mich.; Biskiston P., Son & Co., Philadelphia, Pa.
Concanon, James J., New York, N. Y.; Cusick, Wm., Cynthiana, Tenn.; Cross, J. W. S., Plainville, Kan.; Caldwell, J. L., Lafayette, Ind.; Craig, G. G., Rock Island, Ill.
Edmonson, G. S., Marcia, Ill.; Eclipse Bicycle Co., Elmira, N. Y.; Egan, J. A., Springfield, Ill.; Easter, G. L., Rock Island, Ill.
Fehr, Louis J., Hoboken, N. J.; Flavell, G. W. & Bro., Philadelphia, Pa.; Fairball, Joseph, Danville, Ill.; Fougera, E. & Co., New York, N. Y.
Gould, George M., Philadelphia, Pa.; Godin, H. J., Augusta, Ga.; Glueck, F., Davenport, Iowa; Goelet, A. H., New York, N. Y.; Garrison, Harriet, Dixon, Ill.; Gihon, A. L., New York, N. Y.; Gilpin, Langdon & Co., Baltimore, Md.; Grigsby, W. E., Blandinsville, Ill.
Howie, W. P., Oran, Mo.; Hawkins, Armand, New Orleans, La.; Howard, Cuyahoga Falls, Ohio; Harris, J. L., Webster, S. D.; Hull, W. H. H. & Co., New York, N. Y.; Hart, B. F., Marietta, Ohio; Horning, Frank, Hellam, Pa.; Henderson, D. W., Marysville, Ohio; Houghton, Mifflin & Co., Boston, Mass.
Kiehs, A. C., Citronelle, Ala.; Kruger & Co., Leipzig, Germany.
Lentz, Charles & Sons, Philadelphia, Pa.; Lieberman, G. N., Adamston, W. Va.; Luckey, John E., Vinton, Iowa.
Mariani & Co., New York, N. Y.; Monette, Geo. N., New Orleans, La.; Medical Examiner, The, New York, N. Y.; Mills, H. R., Port Huron, Mich.; Munn & Co., New York, N. Y.; Moore, Dwight S., Jamestown, N. D.; Montgomery Ward & Co., Chicago, Ill.; Mowery, H. W., Marietta, Pa.; McLean, C. H., Durango, Colo.
Osgood Palace Car Co., Boston, Mass.; Osborn, B. D., Waldo, Ohio.
Peacock & Co., St. Louis, Mo.; Patton, E. E., New Kensigton, Pa.; Parker, F. D., Akron, N. Y.; Pepper, Wm., Philadelphia, Pa.
Rothrock, J. T., Harrisburg, Pa.
Scott, W. Stone, Cleveland, Ohio; Stevenson, Sarah Hackett, Chicago, Ill.; Sincere, Emil, Chicago, Ill.; Stearns, Frederick & Co., Detroit, Mich.; Savage, G. C., Nashville, Tenn.; St. Charles Condensing Co., St. Charles, Ill.; Schering & Glatz, (2) New York, N. Y.; Sheldon, N. K., Battle Creek, Mich.; Stappora, M. G. G., Thomas, W. Va.
Tyler, D. C., Clifton, Kan.
Van Male, John, Bangor, Cal.
Wood, T. J., Huron, S. D.; Walker Pharmacal Co., St. Louis, Mo.; Walker, Hiram & Sons, Walkerville, Canada.
Zeit, F. Rob, Chicago, Ill.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from December 4 to 10, 1897.

Capt. Madison M. Brewer, Asst. Surgeon, is granted leave of absence for four months from the date of his departure from Ft. Keogh, Mont.

Capt. William O. Owen, Asst. Surgeon (Ft. Bayard, N. M.), is granted leave of absence for one month.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending December 4, 1897.

P. A. Surgeon S. S. White, detached from the "Concord" and ordered to the "Wheeling."